OBSERVATIONS
UPON
EXPERIMENTAL
PHILOSOPHY.

To which is added,

THE
DESCRIPTION
OF A
New Blazing World.

WRITTEN
By the Thrice Noble, Illuſtrious, and Excellent
PRINCESSE,
THE
Ducheſs of Newcaſtle.

L O N D O N,
Printed by *A. Maxwell,* in the Year, 1666.

UMI

TO

HER GRACE

THE

Ducheſs of Newcaſtle,

On her OBSERVATIONS upon

EXPERIMENTAL PHILOSOPHY.

THis Book *is* Book *of* Books, *and onely fits*
Great ſearching Brains, and Quinteſſence of Wits;
For this will give you an Eternal Fame,
And laſt to all Poſterity your Name:
You conquer Death, *in a perpetual* Life;
And make me famous *too in ſuch a* Wife.
So I will Propheſie in ſpight of Fools,
When dead, then honour'd, and be read in Schools.
And Ipſe dixit *loſt, not* He, *but* She
Still cited in your ſtrong Philoſophy.

William Newcaſtle.

TO HIS

GRACE

THE

Duke of Newcaſtle.

My Noble Lord,



IN this preſent Treatiſe, I have ventured to make ſome obſervations upon Experimental Philoſophy, and to examine the Opinions of ſome of our Modern Microſcopical or Dioptrical Writers; and though your Grace is not onely a lover of Vertuoſoes, but a Vertuoſo your ſelf, and have as good, and as many ſorts of Optick Glaſſes as any one elſe; yet you do not buſie your ſelf much with this brittle Art, but employ moſt part of your time in the more noble and heroick Art of *Horſemanſhip* and *Weapons*, as alſo in the ſweet and delightful Art of *Poetry*, and in the uſeful Art of

Architecture, &c. which ſhews that you do not believe much in the Informations of thoſe Optick glaſſes, at leaſt think them not ſo uſeful as others do that ſpend moſt of their time in Dioptrical inſpections. The truth is, *My Lord*, That moſt men in theſe latter times, buſie themſelves more with other Worlds, then with this they live in, which to me ſeems ſtrange, unleſs they could find out ſome Art that would carry them into thoſe Celeſtial Worlds, which I doubt will never be; nay, if they did, it would be no better then *Lucian's*, or the *French-mans* Art, with Bottles, Bladders, *&c.* or like the mans that would ſcrue himſelf up into the Moon: And therefore I confeſs, I have but little faith in ſuch Arts, and as little in Teleſcopical, Microſcopical, and the like inſpections, and prefer rational and judicious Obſervations before deluding Glaſſes and Experiments; which, as I have more at large declared in this following work, ſo I leave it to your Graces peruſal and judgment, which I know is ſo juſt, ſo exact, and ſo wiſe, that I may more ſafely rely upon it, then all others beſides; and if your Grace do but approve of it, I care not if all the world condemn it; for your Graces Approbation is all that can be deſired from,

My Lord,

Your Graces honeſt Wife,
and humble Servant,

M. N.

TO THE

MOST FAMOUS

UNIVERSITY

OF

CAMBRIDG.

Most Noble, and Eminently-Learned,

DO not judg it an Impertinency, that now again I presume to offer unto you another piece of my Philosophical Works; for when I reflect upon the honour you have done me, I am so much sensible of it, that I am troubled I cannot make you an acknowledgment answerable to your great Civilities.

You might, if not with scorn, with silence have passed by, when one of our Sex, and what is more, one that never was versed in the sublime Arts and Sciences of literature, took upon her to write, not onely of Philosophy, the highest of all humane Learning, but to offer it to so famous and celebrated a University as yours; but your Goodness

and

and Civility being as great as your Learning, would rather conceal, then discover or laugh at those weaknesses and imperfections which you know our Sex is liable to; nay, so far you were from this, that by your civil respects, and undeserved commendations, you were pleased to cherish rather, then quite to suppress or extinguish my weak endeavours.

For which Favour, as I found my self doubly indebted to you, so I thought it my duty to pay you my double acknowledgments; Thanks, you know, can never be unseasonable, when petitions may; neither can they be unpleasing, when petitions often are troublesome; and since there is no sacrifice, which God is more delighted with, then that of Thanks-giving, I live in hopes you will not refuse this repeated offer of Gratitude, but favourably, as a due to your Merits, receive it from her, who both of your Ingenuity, Learning and Civility is the greatest admirer, and shall always profess her self,

Your most Obliged and

Devoted Servant.

M. Newcastle

THE

THE PREFACE TO THE ENSUING TREATISE.

IS probable, ſome will ſay, that my much writing is a diſeaſe; but what diſeaſe they will judg it to be, I cannot tell; I do verily believe they will take it to be a diſeaſe of the Brain, but ſurely they cannot call it an Apoplexical or Lethargical diſeaſe: Perhaps they will ſay, it is an extravagant, or at leaſt a Fantaſtical diſeaſe; but I hope they will rather call it a diſeaſe of wit. But, let them give it what name they pleaſe, yet of this I am ſure, that if much writing be a diſeaſe, then the beſt Philoſophers, both Moral and

Natural, as alſo the beſt Divines, Lawyers, Phyſitians, Poets, Hiſtorians, Orators, Mathematicians, Chymiſts, and many more have been grievouſly ſick, and *Seneca*, *Plinius*, *Ariſtotle*, *Cicero*, *Tacitus*, *Plutarch*, *Euclid*, *Homer*, *Virgil*, *Ovid*, St. *Auguſtin*. St. *Ambroſe*, *Scotus*, *Hippocrates*, *Galen*, *Paracelſus*, and hundreds more, have been at deaths door with the diſeaſe of writing; but to be infected with the ſame diſeaſe, which the devouteſt, wiſeſt, wittieſt, ſubtileſt, moſt learned and eloquent men have been troubled withal, is no diſgrace, but the greateſt honour, even to the moſt ambitious perſon in the world: and next to the honour of being thus infected, it is alſo a great delight and pleaſure to me, as being the onely Paſtime which imploys my idle hours; in ſo much, that, were I ſure no body did read my Works, yet I would not quit my paſtime for all this; for although they ſhould not delight others, yet they delight me; and if all Women that have no imployment in worldly affairs, ſhould but ſpend their time as harmleſly as I do, they would not commit ſuch faults as many are accuſed of.

I confeſs, there are many uſeleſs and ſuperfluous Books, and perchance mine will add to the number of them; eſpecially is it to be obſerved, that there have been in this latter age, as many Writers of Natural Philoſophy, as in former ages there have been of Moral Philoſophy; which multitude, I fear, will produce ſuch a confuſion of Truth and Falſhood, as the number

of

of Moral Writers formerly did, with their over-nice diviſions of Vertues and vices, whereby they did puzle their Readers ſo, that they knew not how to diſtinguiſh between them. The like, I doubt, will prove amongſt our Natural Philoſophers, who by their extracted, or rather diſtracted arguments, confound both Divinity and Natural Philoſophy, Senſe and Reaſon, Nature and Art, ſo much as in time we ſhall have rather a Chaos, then a well-order'd Univerſe by their doctrine: Beſides, many of their Writings are but parcels taken from the ancient; but ſuch Writers are like thoſe unconſcionable men in Civil Wars, which endeavour to pull down the hereditary Manſions of Noble-men and Gentlemen, to build a Cottage of their own; for ſo do they pull down the learning of Ancient Authors, to render themſelves famous in compoſing Books of their own. But though this Age does ruine Palaces, to make Cottages; Churches, to make Conventicles; and Univerſities to make private Colledges; and endeavour not onely to wound, but to kill and bury the Fame of ſuch meritorious Perſons as the Ancient were, yet, I, hope God of his mercy will preſerve State, Church, and Schools, from ruine and deſtruction; Nor do I think their weak works will be able to overcome the ſtrong wits of the Ancient; for ſetting aſide ſome few of our Moderns, all the reſt are but like dead and withered leaves, in compariſon to lovely and lively Plants; and as for Arts, I am confi-

dent,

dent, that where there is one good Art found in theſe latter ages, there are two better old Arts loſt, both of the *Ægyptians*, *Grecians*, *Romans*, and many other ancient Nations; (when I ſay loſt, I mean in relation to our knowledg, not in Nature; for nothing can be loſt in Nature) Truly, the Art of Augury was far more beneficial then the lately invented Art of Micrography; for I cannot perceive any great advantage this Art doth bring us. Alſo the Eccliplſe of the Sun and Moon was not found out by Teleſcopes, nor the motions of the Loadſtone, nor the Art of the Card, nor the Art of Guns and Gun-powder, nor the Art of Printing, and the like, by Microſcopes; nay, if it be true, that Teleſcopes make appear the ſpots in the Sun and Moon, or diſcover ſome new Stars, what benefit is that to us? Or if Microſcopes do truly repreſent the exterior parts and ſuperficies of ſome minute Creatures, what advantages it our knowledg? For unleſs they could diſcover their interior, corporeal, figurative motions, and the obſcure actions of Nature, or the cauſes which make ſuch or ſuch Creatures, I ſee no great benefit or advantage they yield to man: Or if they diſcover how reflected light makes looſe and ſuperficial Colours, ſuch as no ſooner percieved, but are again diſſolved; what benefit is that to man? For neither Painters nor Dyers can incloſe and mix that Atomical duſt, and thoſe reflections of light to ſerve them for any uſe. Wherefore, in my opinion, it is both time and labour loſt; for the

the inſpection of the exterior parts of Vegetables, doth not give us any knowledg how to Sow, Set, Plant, and Graft; ſo that a Gardener or Husbandman will gain no advantage at all by this Art: The inſpection of a Bee, through a Microſcope, will bring him no more Honey, nor the inſpection of a grain more Corn; neither will the inſpection of duſty Atomes, and reflections of light, teach Painters how to make and mix Colours, although it may perhaps be an advantage to a decayed Ladies face, by placing her ſelf in ſuch or ſuch a reflection of Light, where the duſty Atomes may hide her wrinkles. The truth is, moſt of theſe Arts are Fallacies, rather then diſcoveries of Truth; for Senſe deludes more then it gives a true Information, and an exterior inſpection through an Optick glaſs, is ſo deceiving, that it cannot be relied upon: Wherefore Regular Reaſon is the beſt guide to all Arts, as I ſhall make it appear in this following Treatiſe.

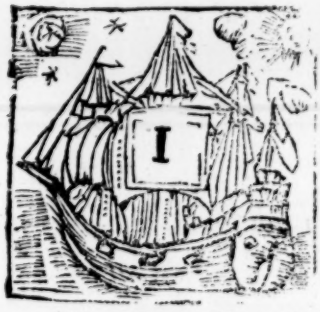
It may be the World will judg it a fault in me, that I oppoſe ſo many eminent and ingenious Writers, but I do it not out of a contradicting or wrangling nature, but out of an endeavour to find out truth, or at leaſt the probability of truth, according to that proportion of ſenſe and reaſon Nature has beſtowed upon me; for as I have heard my Noble Lord ſay, that in the Art of Riding and Fencing, there is but one Truth, but many Falſhoods and Fallacies: So it may be ſaid of Natural Philophy and Divinity; for there is but one Fundamental

mental Truth in each, and I am as ambitious of finding out the truth of Nature, as an honourable Dueller is of gaining fame and repute; for as he will fight with none but an honourable and valiant oppoſite, ſo am I reſolved to argue with none but thoſe which have the renown of being famous and ſubtil Philoſophers; and therefore as I have had the courage to argue heretofore with ſome famous and eminent Writers in Speculative Philoſophy; ſo have I taken upon me in this preſent work, to make ſome reflections alſo upon ſome of our Modern Experimental and Dioptrical Writers. They will perhaps think my ſelf an inconſiderable oppoſite, becauſe I am not of their Sex, and therefore ſtrive to hit my Opinions with a ſide ſtroke, rather covertly, then openly and directly; but if this ſhould chance, the impartial World, I hope, will grant me ſo much Juſtice as to conſider my honeſty, and their fallacy, and paſs ſuch a judgment as will declare them to be Patrons, not onely to Truth, but alſo to Juſtice and Equity; for which Heaven will grant them their reward, and time will record their noble and worthy Actions in the Regiſter of Fame, to be kept in everlaſting Memory.

TO

TO THE READER.

Curteous Reader,



Do ingeniouſly confeſs, that both for want of learning and reading Philoſophical Authors, I have not expreſſed my ſelf in my Philoſophical Works, eſpecially in my Philoſophical and Phyſical Opinions, ſo clearly and plainly as I might have done, had I had the aſſiſtance of Art, and the practice of reading other Authors: But though my Conceptions ſeem not ſo perſpicuous in the mentioned Book of Philoſophical Opinions; *yet my* Philoſophical Letters, *and theſe preſent* Obſervations, *will, I hope, render it more intelligible, which I have writ, not out of an ambitious humour, to fill the World with uſeleſs Books, but to explain and illuſtrate my own Opinions; For what benefit would it be to me, if I ſhould put forth a work, which by reaſon*

reaſon of its obſcure and hard notions, could not be underſtood? eſpecially, it is known, that Natural Philoſophy is the hardeſt of all humane learning, by reaſon it conſiſts onely in Contemplation, and to make the Philoſophical Conceptions of ones mind known to others, is more difffcult then to make them believe, that if A. B. *be equal to* C. D. *then* E. F. *is equal to* A. B. *becauſe it is equal to* C. D. *But as for Learning, that I am not verſed in it, no body, I hope, will blame me for it, ſince it is ſufficiently known, that our Sex is not bred up to it, as being not ſuffer'd to be inſtructed in Schools and Univerſities; I will not ſay, but many of our Sex may have as much wit, and be capable of Learning as well as Men; but ſince they want Inſtructions, it is not poſſible they ſhould attain to it; for Learning is Artificial, but Wit is Natural. Wherefore, when I began to read the Philoſophical Works of other Authors, I was ſo troubled with their hard words and expreſſions at firſt, that had they not been explained to me, and had I not found out ſome of them by the context and connexion of the ſenſe, I ſhould have been far enough to ſeek; for their hard words did more obſtruct, then inſtruct me. The truth is, if any one intends to write Philoſophy, either in Engliſh, or any other language; he ought to conſider the propriety of the language, as much as the Subject he writes of; or elſe to what purpoſe would it be to write? If you do write Philoſophy in Engliſh, and uſe all the hardeſt words and expreſſions which none but Scholars are able to underſtand, you had better to write it in Latine; but if you will write for thoſe that do not underſtand*

underſtand Latin, Your reaſon will tell you, that you muſt explain thoſe hard words, and Engliſh them in the eaſieſt manner you can; What are words but marks of things? and what are Philoſophical Terms, but to expreſs the Conceptions of ones mind in that Science? And truly I do not think that there is any Language ſo poor, which cannot do that; wherefore thoſe that fill their writings with hard words, put the horſes behind the Coach, and inſtead of making hard things eaſie, make eaſie things hard, which eſpecially in our Engliſh writers is a great fault; neither do I ſee any reaſon for it, but that they think to make themſelves more famous by thoſe that admire all what they do not underſtand, though it be Non-ſenſe; but I am not of their mind, and therefore although I do underſtand ſome of their hard expreſſions now, yet I ſhun them as much in my writings as is poſſible for me to do, and all this, that they may be the better underſtood by all, learned as well as unlearned; by thoſe that are profeſſed Philoſophers as well as by thoſe that are none: And though I could employ ſome time in ſtudying all the hardeſt phraſes and words in other Authors, and write as learnedly perhaps as they; yet will I not deceive the World, nor trouble my Conſcience by being a Mountebanck in learning, but rather prove naturally wiſe then artificially fooliſh; for at beſt I ſhould but obſcure my opinions, and render them more intricate inſtead of clearing and explaining them; but if my Readers ſhould ſpie any errors ſlipt into my writings for want of art and learning, I hope they'l be ſo juſt as not to cenſure

me too ſeverely for them, but expreſs their wiſdom in preferring the kernel before the ſhells.

It is not poſſible that a young Student, when firſt he comes to the Univerſity, ſhould hope to be Maſter of Art in one Month, or one Year; and ſo do I likewiſe not perſwade my ſelf, that my Philoſophy *being new, and but lately brought forth, will at firſt ſight prove Maſter of Underſtanding, nay, it may be not in this age; but if God favour her, ſhe may attain to it in after-times and if ſhe be ſlighted now and buried in ſilence, ſhe may perhaps riſe more glorioufly hereafter; for her Ground being Senſe and Reaſon, She may meet with an age where ſhe will be more regarded, then ſhe is in this.*

But Courteous Reader, *all what I requeſt of you at preſent, is, That if you have a mind to underſtand my* Philoſophical Conceptions *truly, You would be pleaſed to read them not by parcels, here a little, and there a little, (for I have found it by my ſelf, that when I read not a book thoroughly from beginning to end, I cannot well underſtand the Authors deſign, but may eaſily miſtake his meaning; I mean ſuch Books as treat of* Philoſophy, Hiſtory, *&c. where all parts depend upon each other,) But if you'l give an impartial judgment of my* Philoſophy, *read it all, or elſe ſpare your Cenſures; eſpecially do I recommend to you my* Philoſophical Opinions, *which contain the Grounds and* Principles *of my* Philoſophy, *but ſince they were publiſhed before I was verſed in the reading of other Authors, I deſire you to join my* Philoſophical

phical Leters, *and these observations to them, which will serve as Commentaries to explain what may seem obscure in the mentioned Opinions; but before all, read this following Argumental Discourse wherein are contained the Principles and grounds of Natural Philosophy, especially concerning the constitutive parts of Nature and their properties and actions; as also be pleas'd to peruse the later discourse of the first part of this Book, which treats of Perception; for Perception being the chief and general action of Nature, has occasioned me to be more prolix in explaining it, then any other subject; You'l find that I go much by the way of argumentation, and framing objections and answers; for I would fain hinder and obstruct as many objections as could be made against the grounds of my Opinions; but since it is impossible to resolve all, for as Nature and her parts and actions are infinite, so there may also endless objections be raised; I have endeavoured onely to set down such as I thought might be most material; but this I find, that there is no objection but one may find an answer to it; and as soon as I have made an answer to one objection, another offers it self again, which shews not onely that Natures actions are infinite, but that they are poised and ballanced so that they cannot run into extreams.*

However I do not applaud my self so much, as to think that my works can be without errors, for Nature is not a Deity, but her parts are often irregular, and how is it possible that one particular Creature can know all the ob-

scure

ſcure and hidden infinite varieties of Nature? if the Truth of Nature were ſo eaſily known, we had no need to take ſo much pains in ſearching after it; but Nature being Material, and conſequently dividable, her parts have but divided knowledges, and none can claim a Univerſal infinite knowledg. Nevertheleſs, although I may erre in my arguments, or for want of artificial Terms; yet I believe the Ground of my Opinions is True, becauſe it is ſenſe and reaſon.

I found after the peruſal of this preſent book, that ſeveral places therein might have been more perſpicuouſly delivered, and better cleared; but ſince it is impoſſible that all things can be ſo exact, that they ſhould not be ſubject to faults and imperfections; for as the greateſt beauties are not without moles, ſo the beſt Books are ſeldom without Errors; I intreat the ingenuous Reader to interpret them to the beſt ſenſe; for they are not ſo material, but that either by the context or connexion of the whole diſcourſe, or by a comparing with other places, the true meaning thereof may eaſily be underſtood; and to this end I have ſet down this following explanation of ſuch places, as in the peruſal I have obſerved, whereby the reſt may alſo eaſily be mended.

Part I. c. 2. pag. 6. *When I ſay, that* Diſcourſe ſhall ſooner find out Natures Corporeal figurative Motions, then Art ſhall inform the Senſes. *By Diſcourſe, I do not mean ſpeech, but an Arguing of the mind, or a Rational inquiry into the Cauſes of Natural effects; for Diſcourſe is as much as*

Rea-

Reaſoning with our ſelves, which may very well be done without Speech or Language, as being onely an effect or action of Reaſon.

When I ſay, That Art may make Pewter, Braſs, &c. C. 3. pag. 8. *I do not mean as if theſe Figures were Artificial, and not Natural; but my meaning is, That if Art imitates Nature in producing of Artificial Figures, they are moſt commonly ſuch as are of mixt Natures, which I call* Hermaphroditical.

When I ſay, That Reſpiration is a Reception and C. 4. pag. 15. Emiſſion of parts through the pores or paſſages proper to each particular figure, ſo that when ſome parts iſſue, others enter; *I do not mean at one and the ſame time, or always through the ſame paſſages; for, as there is variety of Natural Creatures and Figures, and of their perceptions; ſo of the manner of their perceptions, and of their paſſages and pores; all which no particular Creature is able exactly to know or determine: And therefore when I add in the following Chapter, That* Nature has more ways of compoſing and dividing of parts, then by the way of drawing in, and ſending forth by pores; *I mean, that not all parts of Nature have the like Reſpirations: The truth is, it is enough to know in general, That there is Reſpiration in all parts of Nature, as a general or univerſal action; and that this Reſpiration is nothing elſe but a compoſition and diviſion of Parts; but how particular Reſpirations are performed, none but Infinite Nature is capable to know.*

C. 5. Pag. 16. *When I ſay, That* there is a difference between Reſpiration and Perception; and that Perception is an action of figuring or patterning; but Reſpiration an action of Reception and Emiſſion of Parts: *Firſt, I do not mean, that all Perception is made by patterning or imitation; but I ſpeak onely of the Perception of the exterior ſenſes in Animals, at leaſt in man, which I obſerve to be made by patterning or imitation; for as no Creature can know the infinite perceptions in Nature, ſo he cannot deſcribe what they are, or how they are made. Next, I do not mean, that Reſpiration is not a Perceptive action; for if Perception be a general and univerſal action in Nature, as well as Reſpiration, both depending upon the compoſition and diviſion of parts, it is impoſſible but that all actions of Nature muſt be perceptive, by reaſon perception is an exterior knowledg of forreign parts and actions; and there can be no commerce or intercourſe, nor no variety of figures and actions; no productions, diſſolutions, changes and the like, without Perception; for how ſhall Parts work and act, without having ſome knowledg or perception of each other? Beſides, whereſoever is ſelf-motion, there muſt of neceſſity be alſo Perception; for ſelf-motion is the cauſe of all exterior Perception. But my meaning is, That the Animal, at leaſt Humane reſpiration, which is a receiveing of forreign parts, and diſcharging or venting of its own in an animal or humane Figure or Creature, is not the action of Animal Perception, properly ſo call'd; that is, the*

the perception of its exterior ſenſes, as Seeing, Hearing, Taſting, Touching, Smelling; which action of Perception is properly made by way of patterning and imitation, by the innate, figurative motions of thoſe Animal Creatures, and not by receiving either the figures of the exterior objects into the ſenſitive Organs, or by ſending forth ſome inviſible rayes from the Organ to the Object; nor by preſſure and reaction. Nevertheleſs, as I ſaid, every action of Nature is a Knowing and Perceptive action; and ſo is Reſpiration, which of neceſſity preſuppoſes a knowledg of exterior parts, eſpecially thoſe that are concern'd in the ſame action, and can no ways be perform'd without perception of each other.

When I ſay, That if all mens Opinions and Fancies were Rational, there would not be ſuch variety in Nature as we perceive there is; *by* Rational *I mean* Regular, *according to the vulgar way of expreſſion, by which a Rational Opinion is call'd, That which is grounded upon regular ſenſe and reaſon; and thus Rational is oppoſed to Irregular: Nevertheleſs, Irregular Fancies and Opinions are made by the rational parts of matter, as well as thoſe that are regular; and therefore in a Philoſophical and ſtrict ſenſe, one may call Irregular Opinions as well* Rational, *as thoſe that are* Regular; *but according to the vulgar way of expreſſion, as I ſaid, it is ſooner underſtood of* Regular, *then of* Irregular *Opinions, Fancies or Conceptions.* Chap. 15. pag. 44.

When

C.16.pa.47. *When I ſay, that* None of Nature's parts can be call'd Inanimate, or Soul-leſs; *I do not mean the conſtitutive parts of Nature, which are, as it were, the Ingredients whereof Nature conſiſts, and is made up; whereof there is an inanimate part or degree of matter, as well as animate; but I mean the parts or effects of this compoſed body of Nature, of which I ſay, that none can be call'd inanimate; for though ſome Philoſophers think that nothing is animate, or has life in Nature, but Animals and Vegetables; yet it is probable, that ſince Nature conſiſts of a commixture of animate and inanimate matter, and is ſelf-moving, there can be no part or particle of this compoſed body of Nature, were it an Atome, that may be call'd Inaminate, by reaſon there is none that has not its ſhare of animate, as well as inanimate matter, and the commixture of theſe degrees being ſo cloſe, it is impoſſible one ſhould be without the other.*

Cap. 20. Pag. 63. *When enumerating the requiſites of the Perception of Sight in Animals, I ſay, that* if one of them be wanting, there is either no perception at all, or it is an imperfect perception; *I mean, there is no Animal perception of ſeeing, or elſe an irregular perception.*

Cap. 21. Pag. 76. *When I ſay, that* as the ſenſitive perception knows ſome of the other parts of Nature by their effects; ſo the rational perceives ſome effects of the Omnipotent Power of God; *My meaning is not, as if the ſenſitive part of matter hath no knowledg at all of God; for ſince all parts of Nature, even the inanimate, have an innate*

and

and fixt ſelf-knowledg, it is probable that they may alſo have an interior ſelf-knowledg of the exiſtency of the Eternal and Omnipotent God, as the Author of Nature: But becauſe the rational part is the ſubtileſt, pureſt, fineſt and higheſt degree of matter; it is moſt conformable to truth, that it has alſo the higheſt and greateſt knowledg of God, as far as a natural part can have; for God being Immaterial, it cannot properly be ſaid, that ſenſe can have a perception of him, by reaſon he is not ſubject to the ſenſitive perception of any Creature, or part of Nature; and therefore all the knowledg which natural Creatures can have of God, muſt be inherent in every part of Nature; and the perceptions which we have of the Effects of Nature, may lead us to ſome conceptions of that Supernatural, Infinite, and Incomprehenſible Deity, not what it is in its Eſſence or Nature, but that it is exiſtent, and that Nature has a dependance upon it, as an Eternal Servant has upon an Eternal Maſter.

But ſome might ſay, How is it poſſible that a Corporeal finite part, can have a conception of an Incorporeal, infinite Being; by reaſon that which comprehends, muſt needs be bigger then that which is comprehended? Beſides, no part of Nature can conceive beyond it ſelf, that is, beyond what is Natural or Material; and this proves, that at leaſt the rational part, or the mind, muſt be immaterial to conceive a Deity? To which I anſwer, That no part of Nature can or does conceive the Eſſence of God, or what God is in himſelf; but it conceives

onely, that there is such a Divine Being which is Supernatural: And therefore it cannot be said, that a natural Figure can comprehend God; for it is not the comprehending of the Substance of God, or its patterning out, (since God having no Body, is without all Figure) that makes the knowledg of God; but I do believe, that the knowledg of the existency of God, as I mentioned before, is innate, and inherent in Nature, and all her parts, as much as self-knowledg is.

Cap. 24. Pag. 83. *Speaking of the difference between Oil and other liquors; for the better understanding of that place, I thought fit to insert this Note:* Flame *is fluid, but not liquid, nor wet:* Oil *is fluid and liquid, but not wet; but* Water *is both fluid, liquid and wet.* Oil *will turn into flame, and encrease it; but* Water *is so quite opposite to flame, that if a sufficient quantity be poured upon it, it will totally extinguish it.*

Cap. 25. Pag. 93. *When I say, that* Sense and Reason shall be the Ground of my Philosophy, and not particular natural effects; *My meaning is, that I do not intend to make particular Creatures or Figures, the Principles of all the infinite effects of Nature, as some other Philosophers do; for there is no such thing as a Prime or principal Figure of Nature, all being but effects of one Cause. But my Ground is Sense and Reason, that is, I make self-moving matter, which is sensitive and rational, the onely cause and principle of all natural effects.*

When

When 'tis ſaid, That Ice, Snow, Hail, &c. return into their former Figure of Water, whenſoever they diſſolve; *I mean, when they diſſolve their exterior Figures, that is, change their actions.* Cap. 27. Pag. 109.

When I ſay, That the Exterior Object is the Agent, and the Sentient Body the Patient; *I do not mean that the Object does chiefly work upon the Sentient, or is the immediate cauſe of the Perception in the Sentient body, and that the Sentient ſuffers the Agent to act upon it; but I retain onely thoſe words, becauſe they are uſed in Schools; But as for their actions, I am quite of a contrary Opinion, to wit, That the ſentient body is the principal Agent, and the external body the Patient; for the motions of the ſentient in the act of perception, do figure out or imitate the motions of the object, ſo that the object is but as a Copy that is figured out, or imitated by the ſentient, which is the chiefly Agent in all transforming and perceptive actions that are made by way of patterning or imitation.* Cap. 29. Pag. 126.

When I ſay, That one finite part can undergo infinite changes and alterations; *I do not mean one ſingle part, whereof there is no ſuch thing in nature; but I mean, one part may be infinitely divided and compoſed with other parts; for as there are infinite changes, compoſitions and diviſions in Nature, ſo they muſt be of parts; there being no variety but of parts; and though parts be finite, yet the changes may be infinite; for the finiteneſs of parts is but concerning the bulk or quantity* Cap. 31. Pag. 136.

of

of their figures; and they are call'd finite, by reaſon they have limited and circumſcribed figures; nevertheleſs, as for duration, their parts being the ſame with the body of Nature, are as eternal, and infinite as Nature her ſelf, and thus are ſubject to infinite and eternal changes.

Ibid. P.140. *VVhen I ſay,* A World of Gold is as active interiouſly, as a world of Air is exteriouſly; *I mean, it is as much ſubject to changes and alterations as Air; for Gold though its motions are not perceptible by our exterior ſenſes, yet it has no leſs motion then the activeſt body of Nature; onely its motions are of another kind then the motions of Air, or of ſome other bodies; for Retentive motions are as much motions, as diſperſing or ſome other ſorts of motions, although not ſo viſible to our perception as theſe; and therefore we cannot ſay that Gold is more at reſt than other Creatures of Nature; for there is no ſuch thing as Reſt in Nature; although there be degrees of Motion.*

Cap. 31. Pag. 138, *VVhen I ſay, That* the parts of Nature do not drive or preſs upon each other, but that all natural actions are free and eaſie, and not conſtrained; *My meaning is not, as if there was no preſſing or driving of parts at all in Nature, but onely that they are not the univerſal or principal actions of* Natures *body, as it is the opinion of ſome Philoſophers, who think there is no other motion in nature, but by preſſure of parts upon parts:* Nevertheleſs, *there is preſſure and reaction in* Nature, *becauſe there are infinite ſorts of motions.*

Alſo

Also when I say in the same place, That Natures actions are voluntary; *I do not mean, that all actions are made by rote, and none by imitation; but by voluntary actions I understand self-actions; that is, such actions whose principle of motion is within themselves, and doth not proceed from such an exterior Agent, as doth the motion of the inanimate part of matter, which having no motion of it self, is moved by the animate parts, yet so, that it receives no motion from them, but moves by the motion of the animate parts, and not by an infused motion into them; for the animate parts in carrying the inanimate along with them, lose nothing of their own motion, nor impart no motion to the inanimate; no more than a man who carries a stick in his hand, imparts motion to the stick, and loses so much as he imparts; but they bear the inanimate parts along with them, by vertue of their own self-motion, and remain self-moving parts, as well as the inanimate remain without motion.*

Again, when I make a distinguishment between voluntary actions, and exterior perceptions; my meaning is not, as if voluntary actions were not made by perceptive parts; for whatsoever is self-moving and active, is perceptive; and therefore since the voluntary actions of Sense and Reason are made by self-moving parts, they must of necessity be perceptive actions; but I speak of Perceptions properly so call'd, which are occasioned by Forreign parts; and to those I oppose voluntary actions, which are not occasioned, but made by rote; as for Cap. 37. Pag. 212.

example, the perception of ſight in Animals, when outward Objects preſent themſelves to the Optick ſenſe to be perceived, the perception of the Sentient is an occaſioned perception; but whenſoever, either in dreams, or in diſtempers, the ſenſitive motions of the ſame Organ, make ſuch or ſuch figures, without any preſentation of exterior objects, then that action cannot properly be call'd an exterior perception; but it is a voluntary action of the ſenſitive motions in the organ of ſight, not made after an outward pattern, but by rote, and of their own accord.

Cap.9.p.33. *When I ſay, That* Ignorance is cauſed by diviſion, and knowledg by compoſition of parts; *I do not mean an interior, innate ſelf-knowledg, which is, and remains in every part and particle of Nature, both in compoſition and diviſion; for whereſoever is matter, there is life and ſelf-knowledg; nor can a part loſe ſelf-knowledg, any more then it can loſe life, although it may change from having ſuch or ſuch a particular life and knowledg; for to change and loſe, are different things; but I mean an exterior, perceptive knowledg of forreign parts, cauſed by ſelf-motion, of which I ſay, that as a union or combination of parts, makes knowledg, ſo a diviſion or ſeparation of parts, makes Ignorance.*

Cap.15.p.49 *When I ſay, There's difference of Senſe and Reaſon in the parts of one compoſed Figure; I mean not, as if there were different degrees of ſenſe, and different degrees of Reaſon in their own ſubſtance or matter; for ſenſe is but ſenſe, aud reaſon is but reaſon; but my meaning is,*

That

That there are different, ſenſitive and rational motions, which move differently in the different parts of one compoſed Creature.

Theſe are (Courteous Reader) *the ſcruples which I thought might puzle your underſtanding in this preſent Work, which I have cleared in the beſt manner I could; and if you ſhould meet with any other of the like nature, my requeſt is, You would be pleaſed to conſider well the Grounds of my Philoſophy; and as I deſired of you before, read all before you paſs your Judgments and Cenſures; for then, I hope, you'l find but few obſtructions, ſince one place will give you an explanation of the other. In doing thus, you'l neither wrong your ſelf, nor injure the Authoreſs, who ſhould be much ſatisfied, if ſhe could beneſit your knowledg in the leaſt; if not, ſhe has done her endeavour, and takes as much pleaſure and delight in writing and divulging the Conceptions of her mind, as perhaps ſome malicious perſons will do in cenſuring them to the worſt.*

AN

Argumental Diſcourſe

Concerning ſome Principal Subjects in Natural Philoſophy, neceſſary for the better underſtanding, not onely of this, but all other Philoſophical Works, hitherto written by the AUTHORESSE.

WHen I was ſetting forth this Book of *Experimental Obſervations*, a Diſpute chanced to ariſe between the rational Parts of my Mind concerning ſome chief Points and Principles in Natural Philoſophy; for ſome New Thoughts endeavouring to oppoſe and call in queſtion the Truth of my former Conceptions, cauſed a war in my mind, which in time grew to that height, that they were hardly able to compoſe the differences between themſelves, but were in a manner neceſſitated to refer them to the Arbitration of the impartial Reader, deſiring the aſſiſtance of his judgment to reconcile their Controverſies, and, if poſ-

ſible, to reduce them to a ſetled peace and agreement.

The firſt difference did ariſe about the queſtion, *How it came, that Matter was of ſeveral degrees, as Animate and Inanimate, Senſitive and Rational ?* for my latter thoughts would not believe that there was any ſuch difference of degrees of Matter : To which my former coneeptions anſwered, That Nature, being Eternal and Infinite, it could not be known how ſhe came to be ſuch, no more then a reaſon could be given how God came to be : for Nature, ſaid they, is the Infinite Servant of God, and her origine cannot be deſcribed by any finite or particular Creature; for what is infinite, has neither beginning nor end; but that Natural Matter conſiſted of ſo many degrees as mentioned, was evidently perceived by her effects or actions; by which it appeared firſt, that Nature was a ſelf-moving body, and that all her parts and Creatures were ſo too : Next, That there was not onely an animate or ſelf-moving and active, but alſo an inanimate, that is, a dull and paſſive degree of Matter; for if there were no animate degree, there would be no motion, and ſo no action nor variety of figures; and if no inanimate, there would be no degrees of natural figures and actions, but all actions would be done in a moment, and the figures would all be ſo pure, fine and ſubtil, as not to be ſubject to any groſſer perception ſuch as our humane, or other the like perceptions are. This Inanimate

nimate part of Matter, ſaid they, had no ſelf-motion, but was carried along in all the actions of the animate degree, and ſo was not moving, but moved ; which Animate part of Matter being again of two degrees, *viz.* Senſitive and Rational, the Rational being ſo pure, fine and ſubtil, that it gave onely directions to the ſenſitive, and made figures in its own degree, left the working with and upon the Inanimate part, to the Senſitive degree of Matter, whoſe Office was to execute both the rational parts deſign, and to work thoſe various figures that are perceived in Nature; and thoſe three degrees were ſo inſeparably commixt in the body of Nature, that none could be without the other in any part or Creature of Nature, could it be divided to an Atome; for as in the Exſtruction of a houſe there is firſt required an Architect or Surveigher, who orders and deſigns the building, and puts the Labourers to work ; next the Labourers or Workmen themſelves, and laſtly the Materials of which the Houſe is built: ſo the Rational part, ſaid they, in the framing of Natural Effects, is, as it were, the Surveigher or Architect; the Senſitive, the labouring or working part, and the Inanimate, the materials, and all theſe degrees are neceſſarily required in every compoſed action of Nature.

To this, my latter thoughts excepted, that in probability of ſenſe and reaſon, there was no neceſſity of introducing an inanimate degree of Matter; for all thoſe

parts

parts which we call groſs, ſaid they, are no more but a compoſition of ſelf-moving parts, whereof ſome are denſer, and ſome rarer then others; and we may obſerve, that the denſer parts are as active, as the rareſt; for example, Earth is as active as Air or Light, and the parts of the Body are as active, as the parts of the Soul or Mind, being all ſelf-moving, as it is perceiveable by their ſeveral, various compoſitions, diviſions, productions and alterations; nay, we do ſee, that the Earth is more active in the ſeveral productions and alterations of her particulars, then what we name Cœleſtial Lights, which obſervation is a firm argument to prove, that all Matter is animate or ſelf-moving, onely there are degrees of motion, that ſome parts move ſlower, and ſome quicker.

Hereupon my former Thoughts anſwered, that the difference conſiſted not onely in the groſſneſs, but in the dulneſs of the Inanimate parts; and that, ſince the ſenſitive animate parts were labouring on, and with the inanimate, if theſe had ſelf-motion, and that their motion was ſlower then that of the animate parts, they would obſtruct, croſs and oppoſe each other in all their actions, for the one would be too ſlow, and the other too quick.

The latter Thoughts replied, that this ſlowneſs and quickneſs of motion would cauſe no obſtruction at all; for, ſaid they, a man that rides on a Horſe is carried away by the Horſes motion, and has nevertheleſs alſo his

his own motions himſelf; neither does the Horſe and Man transfer or exchange motion into each other, nor do they hinder or obſtruct one another.

The former Thoughts anſwer'd, it was True, that Motion could not be transferred from one body into another without Matter or ſubſtance; and that ſeveral ſelf-moving parts might be joined, and each act a part without the leaſt hinderance to one another; for not all the parts of one compoſed Creature (for example Man) were bound to one and the ſame action; and this was an evident proof that all Creatures were compoſed of parts, by reaſon of their different actions; nay, not onely of parts, but of ſelf-moving parts: alſo they confeſſed, that there were degrees of motion, as quickneſs and ſlowneſs, and that the ſloweſt motion was as much motion as the quickeſt. But yet, ſaid they, this does not prove, that Nature conſiſts not of Inanimate Matter as well as of Animate; for it is one thing to ſpeak of the parts of the compoſed and mixed body of Nature, and another thing to ſpeak of the conſtitutive parts of Nature, which are, as it were, her ingredients of which Nature is made up as one intire ſelf-moving body; for ſenſe and reaſon does plainly perceive, that ſome parts are more dull, and ſome more lively, ſubtil and active; the Rational parts are more agil, active, pure and ſubtil then the ſenſitive; but the Inanimate have no activity, ſubtilty and agility at all, by reaſon they want ſelf-motion; nor no perception, for

ſelf-motion is the cauſe of all perception; and this Triumvirate of the degrees of Matter, ſaid they, is ſo neceſſary to ballance and poiſe Natures actions, that otherwiſe the creatures which Nature produces, would all be produced alike, and in an inſtant; for example, a Child in the Womb would as ſuddenly be framed, as it is figured in the mind; and a man would be as ſuddenly diſſolved as a thought: But ſenſe and reaſon perceives that it is otherwiſe; to wit, that ſuch figures as are made of the groſſer parts of Matter, are made by degrees, and not in an inſtant of time, which does manifeſtly evince, that there is and muſt of neceſſity be ſuch a degree of Matter in Nature as we call Inanimate; for ſurely although the parts of Nature are infinite, and have infinite actions, yet they cannot run into extreams; but are ballanced by their oppoſites, ſo that all parts cannot be alike rare or denſe, hard or ſoft, dilating or contracting, *&c.* but ſome are denſe, ſome rare, ſome hard, ſome ſoft, ſome dilative, ſome contractive, *&c.* by which the actions of Nature are kept in an equal ballance from running into extreams. But put the caſe, ſaid they, it were ſo, that Natures body conſiſted altogether of Animate Matter, or corporeal ſelf-motion, without an intermixture of the inanimate parts, we are confident that there would be framed as many objections againſt that opinion as there are now againſt the inanimate degree of Matter; for diſputes are endleſs, and the more anſwers you receive, the more

objections

objections you will find; and the more objections you make, the more anſwers you will receive; and even this ſhews, that Nature is ballanced by oppoſites: for, put the caſe, the Inanimate parts of Matter were ſelf-moving; then firſt there would be no ſuch difference between the rational and ſenſitive parts as now there is; but every part, being ſelf-moving, would act of, and in it ſelf, that is, in its own ſubſtance as now the rational part of Matter does: Next, if the inanimate part was of a ſlower motion then the rational and ſenſitive, they would obſtruct each other in their actions, for one would be too quick, and the other too ſlow; neither would the quicker motion alter the nature of the ſlower, or the ſlower retard the quicker; for the nature of each muſt remain as it is; or elſe if it ſhould be thus, then the animate part might become inanimate, and the rational the ſenſitive, *&c.* which is impoſſible, and againſt all ſenſe and reaſon.

At this declaration of my former Thoughts, the latter appear'd ſomewhat better ſatisfied, and had almoſt yielded to them, but that they had yet ſome ſcruples left, which hindered them from giving a full aſſent to my former rational conceptions. Firſt they asked, how it was poſſible, that that part of Matter which had no innate ſelf-motion, could be moved? for, ſaid they, if it be moved, it muſt either be moved by its own motion, or by the motion of the animate part of Matter: by its own motion it cannot move, becauſe it has none;

But

But if it be moved by the motion of the animate, then the animate muſt of neceſſity transfer motion into it: that ſo, being not able to move by an innate motion, it might move by a communicated motion.

The former Thoughts anſwered, that they had reſolved this queſtion heretofore by the example of a Horſe and a Man, where the Man was moved and carried along by the Horſe, without any Communication or Tranſlation of motion from the Horſe into the Man; alſo a Stick, ſaid they, carried in a Man's hand, goes along with the man, without receiving any motion from his hand.

My latter Thoughts replied, That a Man and a Stick were parts or Creatures of Nature, which conſiſt of a commixture of Animate or ſelf-moving Matter, and that they did move by their own motions, even at the time when they were carried along by other parts; but with the Inanimate part of Matter it was not ſo; for it having no ſelf-motion, could no ways move.

You ſay well, anſwered my former Thoughts, that all the parts of Nature, whenſoever they move, move by their own motions; which proves, that no particular Creature or effect of compoſed Nature, can act upon another, but that one can onely occaſion another to move thus or thus; as in the mentioned example, the Horſe does not move the man, but occaſions him onely to move after ſuch or ſuch a manner; alſo the hand does not move the Stick, but is onely an occaſion that the

the Stick moves thus, for the Stick moves by its own motion.

But as we told you before, this is to be underſtood of the parts of the compoſed body of Nature, which as they are Natures Creatures and Effects, ſo they conſiſt alſo of a commixture of the forementioned degrees of animate and inanimate Matter; but our diſcourſe is now of thoſe parts which do compoſe the body of Nature, and make it what it is: And as of the former parts none can be ſaid moved, but all are moving, as having ſelf-motion within them; ſo the inanimate part of Matter conſidered as it is an ingredient of Nature, is no ways moving, but always moved: The former parts, being effects of the body of Nature, for diſtinctions ſake may be called Effective parts; but theſe, that is, the Animate and Inanimate, may be called conſtitutive parts of Nature: Thoſe follow the compoſition of Nature, but theſe are the Eſſential parts, which conſtitute the body of Nature; whereof the Animate, by reaſon of their ſelf-motion, are always active and perceptive; but the Inanimate is neither active nor perceptive, but dull and paſſive; and you may plainly perceive it, added my former thoughts, by the alledged example; for as the Stick has no animal motion, and yet is carried along by and with the animal whereſoever it goes; ſo the Inanimate Matter, although it has no motion at all, yet it goes along with the animate parts whereſoever they'l have it; the onely difference is this,

as we told you before, that the Stick being compoſed of animate as well as inanimate Matter, cannot properly be ſaid moved, but occaſioned to ſuch a motion by the animal that carries it, when as the inanimate part cannot be ſaid occaſioned, but moved.

My later Thoughts replied, That the alledged example of the carried Stick, could give them no full ſatisfaction as yet; for, ſaid they, put the caſe the Stick had its own motion, yet it has not a viſible, exterior, local, progreſſive motion, ſuch as Animals have, and therefore it muſt needs receive that motion from the animal that carries it; for nothing can be occaſioned to that which it has not in it ſelf.

To which the former anſwered firſt, that although animals had a viſible exterior progreſſive motion, yet not all progreſſive motion was an animal motion: Next, they ſaid, that ſome Creatures did often occaſion others to alter their motions from an ordinary, to an extraordinary effect; and if it be no wonder, ſaid they, that Cheeſe, Roots, Fruits, *&c.* produce Worms, why ſhould it be a wonder for an Animal to occaſion a viſible progreſſive motion in a vegetable or mineral, or any other ſort of Creature? For each natural action, ſaid they, is local, were it no more then the ſtirring of a hairs breadth, nay, of an Atome; and all compoſition and diviſion, contraction, dilation, nay, even retention, are local motions; for there is no thing in ſo juſt a meaſure, but it will vary more or leſs; nay, if it did

did not to our perception, yet we cannot from thence infer that it does not at all; for our perception is too weak and groſs to perceive all the ſubtil actions of Nature; and if ſo, then certainly Animals are not the onely Creatures that have local motion, but there is local motion in all parts of Nature.

Then my later Thoughts asked, that if every part of Nature moved by its own inherent ſelf-motion, and that there was no part of the compoſed body of Nature which was not ſelf-moving, how it came, that Children could not go ſo ſoon as born? alſo, if the ſelf-moving part of Matter was of two degrees, ſenſitive and rational, how it came that Children could not ſpeak before they are taught? and if it was perceptive, how it came that Children did not underſtand ſo ſoon as born?

To which the former anſwered, That although there was no part of Matter that was figureleſs, yet thoſe figures that were compoſed by the ſeveral parts of Matter, ſuch as are named natural Creatures, were compoſed by degrees, and ſome compoſitions were ſooner perfected then others, and ſome ſorts of ſuch figures or Creatures were not ſo ſoon produced or ſtrengthened as others; for example, moſt of four legg'd Creatures, ſaid they, can go, run and skip about ſo ſoon as they are parted from the Dam, that is, ſo ſoon as they are born; alſo they can ſuck, underſtand, and know their Dam's, when as a Bird can neither feed it ſelf, nor fly ſo ſoon as it is hatched, but requires ſome time before it

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can hop on its leggs, and be able to fly; but a Butterfly can fly ſo ſoon as it comes out of the ſhell; by which we may perceive, that all figures are not alike, either in their compoſing, perfecting or diſſolving, no more then they are alike in their ſhapes, forms, underſtanding, &c. for if they were, then little Puppies and Kitlings would ſee, ſo ſoon as born, as many other Creatures do, when as now they require nine days after their birth before they can ſee; and as for ſpeech, although it be moſt proper to the ſhape of Man, yet he muſt firſt know or learn a language before he can ſpeak it; and although when the parts of his mind, like the parts of his body, are brought to maturity, that is, to ſuch a regular degree of perfection as belongs to his figure, he may make a language of his own; yet it requires time, and cannot be done in an inſtant: The truth is, although ſpeech be natural to man, yet language muſt be learned; and as there are ſeveral ſelf-active parts, ſo there are ſeveral Languages; and by reaſon the actions of ſome parts can be imitated by other parts, it cauſes that we name learning not onely in Speech, but in many other things.

Concerning the queſtion why Children do not underſtand ſo ſoon as born: They anſwered, that as the ſenſitive parts of Nature did compoſe the bulk of Creatures, that is, ſuch as were uſually named bodies; and as ſome Creatures bodies were not finiſhed or perfected ſo ſoon as others, ſo the ſelf-moving parts, which by

by conjunction and agreement compoſed that which is named the mind of Man, did not bring it to the perfection of an Animal underſtanding ſo ſoon as ſome Beaſts are brought to their underſtanding, that is, to ſuch an underſtanding as was proper to their figure. But this is to be noted, ſaid they, that although Nature is in a perpetual motion, yet her actions have degrees, as well as her parts, which is the reaſon, that all her productions are done in that which is vulgarly named Time; that is, they are not executed at once, or by one act: In ſhort, as a Houſe is not finiſhed, until it be throughly built, nor can be thorowly furniſhed until it be throughly finiſhed; ſo is the ſtrength and underſtanding of Man, and all other Creatures; and as perception requires Objects, ſo learning requires practice; for though Nature is ſelf-knowing, ſelf-moving, and ſo perceptive; yet her ſelf-knowing, ſelf-moving, and perceptive actions, are not all alike, but differ variouſly; neither doth ſhe perform all actions at once, otherwiſe all her Creatures would be alike in their ſhapes, forms, figures, knowledges, perceptions, productions, diſſolutions, *&c.* which is contradicted by experience.

After this my later Thoughts asked, how it came that the Inanimate part of Matter had more degrees then the Animate?

The former anſwered, That, as the Animate part had but two degrees, to wit, the ſenſitive and rational, ſo

the Inanimate was but groſſer and purer; and as for denſity, rarity, ſoftneſs, hardneſs, &c. they were nothing but various compoſitions and diviſions of parts, or particular effects; nor was it denſity or hardneſs that made groſsneſs; and thinneſs or rarity of parts that made fineneſs and purity; for Gold is more denſe then droſs, and yet is more pure and fine; but this is moſt probable, ſaid they, that the rareſt compoſitions are moſt ſuddenly altered; nor can the groſsneſs and fineneſs of the parts of Nature be without Animate and Inanimate Matter; for the dulneſs of one degree poiſes the activity of the other; and the groſsneſs of one, the purity of the other; all which keeps Nature from extreams.

But replied my later Thonght, You ſay that there are infinite degrees of hardneſs, thickneſs, thinneſs, denſity, rarity, &c.

Truly, anſwered the former, if you'l call them degrees, you may; for ſo there may be infinite degrees of Magnitude, as bigger and bigger, but theſe degrees are nothing elſe but the effects of ſelf-moving Matter, made by a compoſition of parts, and cannot be attributed to one ſingle part, there being no ſuch thing in Nature; but they belong to the infinite parts of Nature, joined in one body; and as for Matter it ſelf, there are no more degrees, but animate and inanimate; that is, a ſelf-moving, active and perceptive, and a dull, paſſive, and moved degree.

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My later Thoughts asked, ſince Natures parts were ſo cloſely joined in one body, how it was poſſible that there could be finite, and not ſingle parts?

The former anſwered, That finite and ſingle parts were not all one and the ſame; for ſingle parts, ſaid they, are ſuch as can ſubſiſt by themſelves; neither can they properly be called parts, but are rather finite wholes; for it is a meer contradiction to ſay ſingle parts, they having no reference to each other, and conſequently not to the body of Nature; But what we call finite Parts, are nothing elſe but ſeveral corporeal figurative motions, which make all the difference that is between the figures or parts of Nature, both in their kinds, ſorts and particulars: And thus finite and particular parts are all one, called thus, by reaſon they have limited and circumſcribed figures, by which they are diſcerned from each other, but not ſingle figures, for they are all joined in one body, and are parts of one infinite whole, which is Nature; and theſe figures being all one and the ſame with their parts of Matter, change according as their parts change, that is, by compoſition and diviſion; for were Nature an Atome, and material, that Atome would have the properties of a body, that is, be dividable and compoſable, and ſo be ſubject to infinite changes, although it were not infinite in bulk.

My later Thoughts replied, That if a finite body could have infinite compoſitions and diviſions, then Nature needed

need not to be infinite in bulk or quantity; beſides, ſaid they, it is againſt ſenſe and reaſon that a finite ſhould have infinite effects.

The former anſwered firſt, As for the infiniteneſs of Nature, it was certain that Nature conſiſted of infinite parts; which if ſo, ſhe muſt needs alſo be of an infinite bulk or quantity; for whereſoever is an infinite number of parts or figures, there muſt alſo be an infinite whole, ſince a whole and its parts differ not really, but onely in the manner of our conception; for when we conceive the parts of Nature as compoſed in one body, and inſeparable from it, the compoſition of them is called a whole; but when we conceive their different figures, actions and changes, and that they are dividable from each other, or amongſt themſelves, we call them parts; for by this one part is diſcerned from the other part; as for example, a Mineral from a Vegetable, a Vegetable from an Element, an Element from an Animal, *&c.* and one part is not another part; but yet theſe parts are, and remain ſtill parts of infinite Nature, and cannot be divided into ſingle parts, ſeparated from the body of Nature, although they may be divided amongſt themſelves infinite ways by the ſelf-moving power of Nature. In ſhort, ſaid they, a whole is nothing but a compoſition of parts, and parts are nothing but a diviſion of the whole.

Next, as for the infinite compoſitions and diviſions of a finite whole, ſaid they, it is not probable that a finite

finite can have infinite effects, or can be actually divided into infinite parts; but yet a body cannot but have the proprieties of a body as long as it laſts; and therefore if a finite body ſhould laſt eternally, it would eternally retain the effects, or rather proprieties of a body, that is, to be dividable and compoſable; and if it have ſelf-motion, and was actually divided and compoſed, then thoſe compoſitions and diviſions of its parts would be eternal too; but what is eternal is infinite, and therefore in this ſenſe one cannot ſay amiſs, but that there might be eternal compoſitions and diviſions of the parts of a finite whole; for whereſoever is ſelf-motion there is no reſt: But, miſtake us not, for we do not mean diviſions or compoſitions into ſingle or infinite parts, but a perpetual and eternal change and ſelf-motion of the parts of that finite body or whole amongſt themſelves.

But becauſe we ſpeak now of the parts of Infinite Nature, which are Infinite in number, though finite, or rather diſtinguiſhed by their figures; It is certain, ſaid they, that there being a perpetual and eternal ſelf-motion in all parts of Nature, and their number being infinite, they muſt of neceſſity be ſubject to infinite changes, compoſitions, and diviſions; not onely as for their duration, or eternal ſelf-motion, but as for the number of their parts; for parts cannot remove but from and to parts; and as ſoon as they are removed from ſuch parts, they join to other parts, which is nothing elſe but a compoſition and diviſion of parts;

and this compoſition and diviſion of the Infinite parts of Nature, hinders that there are no actual diviſions or compoſitions of a finite part, becauſe the one counterbalances the other; for if by finite you underſtand a ſingle part, there can be no ſuch thing in Nature, ſince what we call the finiteneſs of parts, is nothing elſe but the difference and change of their figures, cauſed by ſelf-motion; and therefore when we ſay Infinite Nature conſiſts of an infinite number of finite parts, we mean of ſuch parts as may be diſtinguiſhed or diſcerned from each other by their ſeveral figures; which figures are not conſtant, but change perpetually in the body of Nature; ſo that there can be no conſtant figure allowed to no part, although ſome do laſt longer then others.

Then my later Thoughts deſired to know, whether there were not degrees of Motion, as well as there are of Matter?

The former anſwered, That without queſtion there were degrees of motion; for the rational parts were more agil, quick and ſubtil in their corporeal actions then the ſenſitive, by reaſon they were of a purer and finer degree of Matter, and free from labouring on the inanimate parts: but withal they told them, that the ſeveral different and oppoſite actions of Nature hindred each other from running into extreams: And as for the degrees of Matter, there could not poſſibly be more then Animate and Inanimate, neither could any degree

degree go beyond Matter, ſo as to become immaterial. The truth is, ſaid they, to balance the actions of Nature, it cannot be otherwiſe, but there muſt be a Paſſive degree of Matter, oppoſite to the active; which paſſive part is that we call Inanimate; for though they are ſo cloſely intermixt in the body of Nature, that they cannot be ſeparated from each other, but by the power of God; nevertheleſs, ſenſe and reaſon may perceive that they are diſtinct degrees, by their diſtinct and different actions, and may diſtinguiſh them ſo far, that one part is not another part, and that the actions of one degree are not the actions of the other. Wherefore as ſeveral ſelf-moving parts may be joined in one compoſed body, and may either act differently without hinderance and obſtruction to each other, or may act jointly and agreeably to one effect; ſo may the ſenſitive parts carry or bear along with them the inanimate parts, without either transferring and communicating motion to them, or without any co-operation or ſelf-action of the inanimate parts; and as for Matter, as there can be no fewer degrees then Animate and Inanimate, ſenſitive and rational; ſo neither can there be more; for as we mentioned heretofore, were there nothing but animate or ſelf-moving Matter in Nature, the parts of Nature would be too active and quick in their ſeveral productions, alterations and diſſolutions, and all things would be as ſoon made, as thoughts. Again, were there no Inanimate degree of Matter,

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the ſenſitive corporeal motions would retain the figures or patterns of exterior objects, as the rational do; which yet we perceive otherwiſe; for ſo ſoon as the object is removed, the ſenſitive perception is altered; and though the ſenſitive parts can work by rote, as in dreams and ſome diſtempers, yet their voluntary actions are not ſo exact, as their Exterior perceptive actions, nor altogether and always ſo regular as the rational; and the reaſon is, that they are bound to bear the inanimate parts along with them in all their actions. Alſo were there no degree of Inanimate Matter, Natures actions would run into extreams; but becauſe all her actions are ballanced by oppoſites, they hinder both extreams in Nature, and produce all that Harmonious variety that is found in Natures parts.

But ſaid my later Thoughts, whereſoever is ſuch an oppoſition and croſſing of actions, there can be no harmony, concord or agreement, and conſequently no orderly productions, diſſolutions, changes and alterations, as in Nature we perceive there be.

The former anſwered, That though the actions of Nature were different and oppoſite to each other, yet they did cauſe no diſturbance in Nature, but they were ruled and governed by Natures wiſdom; for Nature being peaceable in her ſelf, would not ſuffer her actions to diſturb her Government; wherefore although particulars were croſſing and oppoſing each other, yet ſhe did govern them with ſuch wiſdom and moderation,

moderation, that they were neceſſitated to obey her and move according as ſhe would have them; but ſometimes they would prove extravagant and refractory, and hence came that we call Irregularities. The truth is, ſaid they, contrary and oppoſite actions are not always at war; for example, two men may meet each other contrary ways, and one may not onely ſtop the other from going forward, but even draw him back again the ſame way he came; and this may be done with love and kindneſs, and with his good will, and not violently by power and force: The like may be in ſome actions of Nature. Nevertheleſs, we do not deny, but there is many times force and power uſed between particular parts of Nature, ſo that ſome do over-power others, but this cauſes no diſturbance in Nature; for if we look upon a well-ordered Government, we find that the particulars are often at ſtrife and difference with each other, when as yet the Government is as orderly and peaceable as can be.

My later thoughts replied, That although the ſeveral and contrary actions in Nature did not diſturb her Government, yet they moving ſeverally in one compoſed figure at one and the ſame time, proved that *Motion*, *Figure* and *Body* could not be one and the ſame thing.

The former anſwered, That they had ſufficiently declared heretofore that Matter was either moving, or moved: *viz.* That the Animate part was ſelf-moving, and the

Inanimate moved, or carried along with, and by the Animate; and theſe degrees or parts of Matter were ſo cloſely intermixt in the body of Nature, that they could not be ſeparated from each other, but did conſtitute but one body, not onely in general, but alſo in every particular; ſo that not the leaſt part (if leaſt could be) nay, not that which ſome call an Atome, was without this commixture; for whereſoever was Inanimate, there was alſo Animate Matter; which Animate Matter was nothing elſe but corporeal ſelf-motion, and if any difference could be apprehended, it was, ſaid they, between theſe two degrees, to wit, the Animate and Inanimate part of Matter, and not between the animate part and ſelf-motion, which was but one thing, and could not ſo much as be conceived differently; and ſince this Animate Matter, or corporeal ſelf-motion is thorowly intermixt with the Inanimate parts, they are but as one body (like as ſoul and body make but one man) or elſe it were impoſſible that any Creature could be compoſed, conſiſt, or be diſſolved; for if there were Matter without Motion, there could be no compoſition or diſſolution of ſuch figures as are named Creatures; nor any, if there were Motion without Matter, or (which is the ſame) an Immaterial Motion; For can any part of reaſon, that is regular, believe, that that which naturally is nothing, ſhould produce a natural ſomething? Beſides, ſaid they, Material and Immaterial are ſo quite oppoſite to each other, as

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'tis impoſſible they ſhould commix and work together, or act one upon the other: nay, if they could, they would make but a confuſion, being of contrary natures: Wherefore it is moſt probable, and can to the perception of Regular ſenſe and reaſon be no otherwiſe, but that ſelf-moving Matter, or corporeal figurative ſelf-motion, does act and govern, wiſely, orderly and eaſily, poiſing or ballancing extreams with proper and fit oppoſitions, which could not be done by immaterials, they being not capable of natural compoſitions and diviſions; neither of dividing Matter, nor of being divided: In ſhort, although there are numerous corporeal figurative motions in one compoſed figure, yet they are ſo far from diſturbing each other, that no Creature could be produced without them; and as the actions of retention are different from the actions of digeſtion or expulſion, and the actions of contraction from thoſe of dilation; ſo the actions of imitation or patterning are different from the voluntary actions vulgarly called Conceptions, and all this to make an equal poiſe or ballance between the actions of Nature. Alſo there is difference in the degrees of motions, in ſwiftneſs, ſlowneſs, rarity, denſity, appetites, paſſions, youth, age, growth, decay, *&c.* as alſo between ſeveral ſorts of perceptions: all which proves, that Nature is compoſed of ſelf-moving parts, which are the cauſe of all her varieties: But this is well to be obſerved, ſaid they, that the Rational parts are the pureſt, and

conſequently

conſequently the moſt active parts of Nature, and have the quickeſt actions; wherefore to ballance them, there muſt be a dull part of Matter, which is the Inanimate, or elſe a World would be made in an inſtant, and every thing would be produced, altered and diſſolved on a ſudden, as they had mentioned before.

Well, replied my later Thoughts, if there be ſuch oppoſitions between the parts of Nature, then I pray inform us, whether they be all equally and exactly poiſed and ballanced?

To which the former anſwered, That though it was moſt certain that there was a poiſe and ballance of Natures corporeal actions; yet no particular Creature was able to know the exactneſs of the proportion that is between them, becauſe they are infinite.

Then my later Thoughts deſired to know, whether Motion could be annihilated?

The former ſaid, no: becauſe Nature was Infinite, and admitted of no addition nor diminution; and conſequently of no new Creation nor annihilation of any part of hers.

But, ſaid the later, If Motion be an accident, it may be annihilated.

The former anſwered, They did not know what they meant by the word *Accident*.

The later ſaid, That an Accident was ſomething in a body, but nothing without a body.

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If an Accident be ſomething, anſwered the former, Then certainly it muſt be body; for there is nothing but what is corporeal in Nature; and if it be body, then it cannot be nothing at no time, but it muſt of neceſſity be ſomething.

But it cannot ſubſiſt of, and by it ſelf, replied my later Thoughts, as a ſubſtance; for although it hath its own being, yet its being is to ſubſiſt in another body.

The former anſwered, That if an Accident was nothing without a body or ſubſtance, and yet ſomething in a body; then they deſired to know, how, being nothing, it could ſubſiſt in another body, and be ſeparated from another body; for compoſition and diviſion, ſaid they, are attributes of a body, ſince nothing can be compoſed or divided but what has parts; and nothing has parts but what is corporeal or has a body, and therefore if an accident can be in a body, and be ſeparated from a body, it would be non-ſenſe to call it nothing.

But then my later Thoughts asked, that when a particular Motion ceaſed, what became of it?

The former anſwered, it was not annihilated, but changed.

The later ſaid, How can motion be corporeal, and yet one thing with body? Certainly if body be material, and motion too, they muſt needs be two ſeveral ſubſtances.

The former anſwered, That motion and body were not two ſeveral ſubſtances; but motion and matter made one ſelf-moving body; and ſo was place, colour, figure, &c. all one and the ſame with body.

The later replied, That a Man, and his action were not one and the ſame, but two different things.

The former anſwered, That a Man, and his actions were no more different, then a man was different from himſelf; for, ſaid they, although a man may have many different actions, yet were not that man exiſtent, the ſame actions would not be; for though many men have the like actions, yet they are not the ſame.

But then replied the later, Place cannot be the ſame with body, nor colour; becauſe a man may change his place and his colour, and yet retain his body.

Truly, ſaid the former, If Place be changed, then Body muſt change alſo; for whereſoever is Place, there is Body; and, though it be a vulgar phraſe, That a man changes his place when he removes, yet it is not a proper Philoſophical expreſſion; for he removes onely from ſuch parts, to ſuch parts; ſo that it is a change or a diviſion and compoſition of parts, and not of place: And as for colour, though it changes, yet that proves not that it is not a body, or can be annihilated. The truth is, though Figure, Motion, Colour, &c. do change, yet they remain ſtill in Nature, and it is impoſſible that Nature can give away, or loſe the leaſt of her corporeal Attributes or Proprieties; for Nature

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is infinite in power, as well as in act; we mean, for acting naturally; and therefore whatsoever is not in present act, is in the power of Infinite Nature.

But, said my later Thoughts, if a body be divided into very minute parts as little as dust, where is the colour then?

The Colour, answered the former, is divided as well as the body; and though the parts thereof be not subject to our sensitive perception, yet they have nevertheless their being; for all things cannot be perceptible by our senses.

The later said, That the Colour of a Man's face could change from pale to red, and from red to pale, and yet the substance of the face remain the same; which proved, that colour and substance was not the same.

The former answered, That although the colour of a mans face did change without altering the substance thereof, yet this proved no more that Colour was Immaterial, then that Motion was Immaterial; for a man may put his body into several postures, and have several actions, and yet without any change of the substance of his body; for all actions do not necessarily import a change of the parts of a composed figure, there being infinite sorts of actions.

We will leave Accidents, said my later Thoughts, and return to the Inanimate part of Matter; and since you declare, that all parts of Nature do worship and adore God, you contradict your self in allowing an Inanimate

Inanimate degree of Matter, by reaſon, where there is no ſelf-motion, there can be no perception of God, and conſequently no Worſhip and Adoration.

The former anſwered, That the knowledg of God did not conſiſt in exterior perception; for God, ſaid they, being an Infinite, Incomprehenſible, ſupernatural and Immaterial Eſſence, void of all parts, can no ways be ſubject to Perception. Nevetheleſs, although no part can have an exterior perception of the ſubſtance of God, as it has of particular natural Creatures, yet it has Conceptions of the Exiſtence of God, to wit, that there is a God above Nature, on which Nature depends, and from whoſe Immutable and Eternal Decree it has its Eternal Being, as God's Eternal Servant; but what God is in his Eſſence, neither Nature, nor any of her parts or Creatures is able to conceive. And therefore although the Inanimate part of Matter is not perceptive, yet having an innate knowledg and life of it ſelf, it is not improbable but it may alſo have an interior, fixt, and innate knowledg of the Exiſtency of God, as that he is to be adored and worſhipped: And thus the Inanimate part may after its own manner worſhip and adore God, as much as the other parts in their ways: for it is probable, that God having endued all parts of Nature with ſelf-knowledg, may have given them alſo an Interior knowledg of himſelf, that is, of his Exiſtency, how he is the God of Nature, and ought to be worſhipped by her as his Eternal ſervant.

My later Thoughts excepted, That not any Creature did truly know it ſelf, much leſs could it be capable of knowing God.

The former anſwered, That this was cauſed through the variety of ſelf-motion; for all Creatures (ſaid they) are compoſed of many ſeveral parts, and every part has its own particular ſelf-knowledg, as well as ſelf-motion, which cauſes an ignorance between them; for one parts knowledg is not another parts knowledg; nor does one part know what another knows; but all knowledg of exterior parts comes by perception; nevertheleſs, each part knows it ſelf and its own actions; and as there is an ignorance between parts, ſo there is alſo an acquaintance (eſpecially in the parts of one compoſed Creature) and the rational parts being moſt ſubtile, active and free, have a more general acquaintance then the ſenſitive; beſides, the ſenſitive many times inform the rational, and the rational the ſenſitive, which cauſes a general agreement of all the parts of a compoſed figure, in the execution of ſuch actions as belong to it.

But how is it poſſible, replied my later Thoughts, that the inanimate part of matter can be living and ſelf-knowing, and yet not ſelf-moving? for Life and Knowledg cannot be without ſelf-motion; and therefore if the inanimate parts have Life and Knowledg, they muſt neceſſarily alſo have ſelf-motion.

The former anſwered, That Life and Knowledg did no ways depend upon ſelf-motion; for had Nature no motion at all, yet might ſhe have Life and Kowledg; ſo that ſelf-motion is not the cauſe of Life and Knowledg, but onely of Perception, and all the various actions of Nature; and this is the reaſon ſaid they, that the inanimate part of matter is not perceptive, becauſe it is not ſelf-moving; for though it hath life and ſelf-knowledg as well as the Animate part, yet it has not an active life, nor a perceptive knowledg. By which you may ſee, that a fixt and interior ſelf-knowledg, may very well be without exterior perception; for though perception preſuppoſes an innate ſelf-knowledg as its ground and principle, yet ſelf-knowledg does not neceſſarily require perception, which is onely cauſed by ſelf-motion; for ſelf-motion, as it is the cauſe of the variety of Natures parts and actions, ſo it is alſo of their various perceptions: If it was not too great a preſumtion, ſaid they, we could give an inſtance of God, who has no local ſelf-motion, and yet is infinitely knowing: But we'l forbear to go ſo high, as to draw the Infinite, Incomprehenſible God, to the proofs of Material Nature.

My later Thoughts replied, firſt, That if it were thus, then one and the ſame parts of matter would have a double life, and a double knowledg.

Next they ſaid, That if perception were an effect

of

of ſelf-motion, then God himſelf muſt neceſſarily be ſelf-moving, or elſe he could not perceive Nature and her parts and actions.

Concerning the firſt objection my former thoughts anſwered, That the parts of Nature could have a double life and knowledg no more, then one man could be call'd double or treble: You might as well ſaid they, make millions of men of one particular man, nay, call every part or action of his a peculiliar man, as make one and the ſame part of matter have a double life and knowledg.

But miſtake us not, added my former thoughts, when we ſay, that one and the ſame part cannot have a double life and knowledg; for we mean not, the compoſed creatures of Nature, which as they conſiſt of ſeveral degrees of matter, ſo they have alſo ſeveral degrees of lives and knowledges; but it is to be underſtood of the eſſential or conſtitutive parts of Nature; for as the rational part is not, nor can be the ſenſitive part, ſo it can neither have a ſenſitive knowledg; no more can a ſenſitive part have a rational knowledg, or either of theſe the knowledg of the inanimate part; but each part retains its own life and knowledg. Indeed it is with theſe parts as it is with particular creatures; for as one man is not another man, nor has another mans knowledg, ſo it is likewiſe with the mentioned parts of matter; and although the animate parts have an

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interior, innate ſelf-knowledg, and an exterior, perceptive knowledg; yet theſe are not double knowledges; but perception is onely an effect of interior ſelf-knowledg, occaſioned by ſelf-motion.

And as for the ſecond, they anſwered, That the Divine Perception and Knowledg was not any ways like a natural Perception, no more than God was like a Creature; for Nature (ſaid they) is material, and her perceptions are amongſt her infinite parts, cauſed by their compoſitions and diviſions; but God is a Supernatural, Individable, and Incorporeal Being, void of all Parts and Diviſions; and therefore he cannot be ignorant of any the leaſt thing; but being Infinite, he has an Infinite Knowledg, without any Degrees, Diviſions, or the like actions belonging to Material Creatures. Nor is he naturally, that is, locally ſelf-moving; but he is a fixt, unalterable, and in ſhort, an incomprehenſible Being, and therefore no compariſon can be made between Him and Nature, He being the Eternal God, and *Nature* his Eternal Servant.

Then my later Thoughts ſaid, That as for the knowledg of God, they would not diſpute of it; but if there was a fixt and interior, innate knowledg in all Natures parts and Creatures, it was impoſſible that there could be any error or ignorance between them.

The former anſwered, that although Errors belonged to particulars as well as ignorance, yet they proceeded not

not from interior ſelf-knowledg, but either from want of exterior particular knowledges; or from the irregularity of motions ; and Ignorance was likewiſe a want not of interior, but exterior knowledg, otherwiſe called Perceptive knowledg : for, ſaid they, Parts can know no more of other parts, but by their own perceptions ; and ſince no particular Creature or part of Nature can have an Infallible, Univerſal, and thorow perception of all other parts ; it can neither have an infallible and univerſal knowledg, but it muſt content it ſelf with ſuch a knowledg as is within the reach of its own perceptions ; and hence it follows, that it muſt be ignorant of what it does not know ; for Perception has but onely a reſpect to the exterior figures and actions of other parts ; and though the Rational part is more ſubtil and active then the Senſitive, and may have alſo ſome perceptions of ſome interior parts and actions of other Creatures, yet it cannot have an infallible and thorow perception of all their interior parts and motions, which is a knowledg impoſſible for any particular Creature to attain to.

Again my later Thoughts objected, That it was impoſſible that the parts of one and the ſame degree could be ignorant of each others actions, how various ſoever, ſince they were capable to change their actions to the like figures.

The former anſwered firſt, That although they might make the like figures, yet they could not make

the ſame, becauſe the parts were not the ſame. Next they ſaid, that particular parts could not have infinite perceptions, but that they could but perceive ſuch objects as were ſubject to that ſort of perception which they had; no not all ſuch; for oftentimes objects were obſcured and hidden from their perceptions, that although they could perceive them if preſented, or coming within the compaſs and reach of their perceptive faculty or power; yet when they were abſent, they could not; beſides, ſaid they, the ſenſitive parts are not ſo ſubtile as to make perceptions into the interior actions of other parts, no not the rational are able to have exact perceptions thereof; for Perception extends but to adjoining parts and their exterior figures and actions, and if they know any thing of their interior parts, figures or motions, it is onely by gueſs or probable concluſions, taken from their exterior actions or figures, and made eſpecially by the rational parts, which as they are the moſt inſpective, ſo they are the moſt knowing parts of Nature.

After theſe and ſeveral other objections, queſtions and anſwers between the later and former thoughts and conceptions of my mind, at laſt ſome Rational thoughts which were not concerned in this diſpute, perceiving that they became much heated, and fearing they would at laſt cauſe a Faction or Civil War amongſt all the rational parts, which would breed that which is called a Trouble of the Mind, endeavoured to make a Peace between

between them, and to that end they propounded, that the ſenſitive parts ſhould publickly declare their differences and controverſies, and refer them to the Arbitration of the judicious and impartial Reader. This propoſition was unanimouſly embraced by all the rational parts, and thus by their mutual conſent this *Argumental Diſcourſe* was ſet down and publiſhed after this manner: In the mean time all the rational parts of my Mind inclined to the opinion of my former conceptions, which they thought much more probable then thoſe of the later; and ſince now it is your part, *Ingenious Readers*, to give a final deciſion of the Cauſe, conſider well the ſubject of thier quarrel, and be impartial in your judgment; let not Self-love or Envy corrupt you, but let Regular Senſe and Reaſon be your onely Rule, that you may be accounted juſt Judges, and your Equity and Juſtice be Remembred by all that honour and love it.

OBSERVA-

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A CATALOGUE OF ALL THE WORKS

Hitherto Publiſhed by the

AUTHORESSE.

SInce it is the faſhion to declare what Books one has put forth to the publick view, I thought it not amiſs to follow the Mode, and ſet down the Number of all the Writings of mine which hitherto have been Printed.

1. *Poems* in Fol. Printed twice, whereof the laſt Impreſſion is much mended.
2. *Natures Pictures; or Tales in Verſe and Proſe*, in Fol.
3. *A Little Tract of Philoſophy*, in 8°
4. *Philoſophical and Phyſical Opinions*, in Fol.
5. The ſame much Enlarged and Altered, in Fol.
6. *Philoſophical Letters*, in Fol.
7. *The Worlds Olio*, now to be reprinted.
8. *Playes* in Fol.
9. *Orations* in Fol.
10. *Sociable Letters* in Fol.

There are ſome others that never were Printed yet, which ſhall, if God grant me Life and Health, be Publiſhed ere long.

OBSERVATIONS
UPON
EXPERIMENTAL PHILOSOPHY.

1. *Of Humane Senſe and Perception.*



Before I deliver my obſervations upon that part of Philoſophy which is call'd Experimental, I thought it neceſſary to premiſe ſome diſcourſe concerning the Perception of Humane Senſe. It is known that man has five Exterior Senſes, and every ſenſe is ignorant of each other; for the Noſe knows not what the Eyes ſee, nor the Eyes what the Ears hear, neither do the Ears know what the Tongue taſtes; and as for Touch, although it is a general Senſe, yet every ſeveral part of the body has a ſeveral touch, and each part is ignorant of each others touch: And thus there is a general ignorance of all the ſeveral parts, and yet a perfect knowledg in each part; for the Eye is as knowing as the Ear,

and the Ear as knowing as the Noſe, and the Noſe as knowing as the Tongue, and one particular Touch knows as much as another, at leaſt is capable thereof: Nay, not onely every ſeveral Touch, Taſte, Smell, Sound or Sight, is a ſeveral knowledg by it ſelf, but each of them hes as many particular knowledges or perceptions as there are objects preſented to them: Beſides, there are ſeveral degrees in each particular ſenſe; As for example, ſome Men (I will not ſpeak of other animals) their perception of ſight, taſte, ſmell, touch, or hearing, is quicker to ſome ſorts of objects, then to others, according either to the perfection or imperfection, or curioſity or purity of the corporeal figurative motions of each ſenſe, or according to the preſentation of each object proper to each ſenſe; for if the preſentation of the objects be imperfect, either through variation or obſcurity, or any other ways, the ſenſe is deluded. Neither are all objects proper for one ſenſe, but as there are ſeveral ſenſes, ſo there are ſeveral ſorts of objects proper for each ſeveral ſenſe. Now if there be ſuch variety of ſeveral knowledges, not onely in one Creature, but in one ſort of ſenſe; to wit, the exterior ſenſes of one humane Creature; what may there be in all the parts of Nature? 'Tis true, there are ſome objects which are not at all perceptible by any of our exterior ſenſes; as for example, rarified air, and the like: But although they be not ſubject to our exterior ſenſitive perception, yet they are

ſubject

ſubject to our rational perception, which is much purer and ſubtiler then the ſenſitive; nay, ſo pure and ſubtil a knowledg, that many believe it to be immaterial, as if it were ſome God, when as it is onely a pure, fine and ſubtil figurative Motion or Perception; it is ſo active and ſubtil, as it is the beſt informer and reformer of all ſenſitive Perception; for the rational Matter is the moſt prudent and wiſeſt part of Nature, as being the deſigner of all productions, and the moſt pious and devouteſt part, having the perfecteſt notions of God, I mean, ſo much as Nature can poſsibly know of God; ſo that whatſoever the ſenſitive Perception is either defective in, or ignorant of, the rational Perception ſupplies. But miſtake me not: by Rational Perception and Knowledg, I mean Regular Reaſon, not Irregular; where I do alſo exclude *Art*, which is apt to delude ſenſe, and cannot inform ſo well as Reaſon doth; for Reaſon reforms and inſtructs ſenſe in all its actions: But both the rational and ſenſitive knowledg and perception being divideable as well as compoſeable, it cauſes ignorance as well as knowledg amongſt Natures Creatures; for though Nature is but one body, and has no ſharer or copartner, but is intire and whole in it ſelf, as not compoſed of ſeveral different parts or ſubſtances, and conſequently has but one Infinite natural knowledg and wiſdom, yet by reaſon ſhe is alſo divideable and compoſeable, according to the nature of a body, we can juſtly and with all reaſon ſay, That, as

Nature

Nature is divided into infinite ſeveral parts, ſo each ſeveral part has a ſeveral and particular knowledg and perception, both ſenſitive and rational, and again that each part is ignorant of the others knowledg and perception; when as otherwiſe, conſidered altogether and in general, as they make up but one infinite body of Nature, ſo they make alſo but one infinite general knowledg. And thus Nature may be called both *Individual*, as not having ſingle parts ſubſiſting without her, but all united in one body; and *Divideable*, by reaſon ſhe is partable in her own ſeveral corporeal figurative motions, and not otherwiſe; for there is no *Vacuum* in Nature, neither can her parts ſtart or remove from the Infinite body of Nature, ſo as to ſeparate themſelves from it, for there's no place to flee to, but body and place are all one thing, ſo that the parts of Nature can onely joyn and disjoyn to and from parts, but not to and from the body of Nature. And ſince Nature is but one body, it is intirely wiſe and knowing, ordering her ſelf-moving parts with all facility and eaſe, without any diſturbance, living in pleaſure and delight, with infinite varieties and curioſities, ſuch as no ſingle Part or Creature of hers can ever attain to.

2. *Of*

2. *Of* Art, *and* Experimental Philoſophy.

SOme are of opinion, *That by Art there can be a reparation made of the Miſchiefs and Imperfections mankind has drawn upon it ſelf by negligence and intemperance, and a wilful and ſuperſtitious deſerting the Preſcripts and Rules of Nature, whereby every man, both from a derived Corruption, innate and born with him, and from his breediug and converſe with men, is very ſubject to ſlip into all ſorts of Errors.* But the all-powerful God, and his ſervant Nature, know, that Art, which is but a particular Creature, cannot inform us of the Truth of the Infinite parts of Nature, being but finite it ſelf; for though every Creature has a double perception, rational and ſenſitive, yet each creature or part has not an Infinite perception; nay, although each particular creature or part of Nature may have ſome conceptions of the Infinite parts of Nature, yet it cannot know the truth of thoſe Infinite parts, being but a finite part it ſelf, which finiteneſs cauſes errors in Perceptions; wherefore it is well ſaid, when they confeſs themſelves, *That the uncertainty and miſtakes of humane actions proceed either from the narrowneſs and wandring of our ſenſes, or from the ſlipperineſs or deluſion of our memory, or from the confinement or raſhneſs of our underſtandiug.* But, ſay they, *It is no wonder that our power over natural Cauſes and Effects is ſo ſlowly im-*

proved, ſeeing we are not onely to contend with the obſcurity and difficulty of the things whereon we work and think, but even the forces of our minds conſpire to betray us: And theſe being the dangers in the proceſs of Humane Reaſon, the remedies can onely proceed from the Real, the Mechanical, the Experimental Philoſophy, which hath this advantage over the Philoſophy of diſcourſe and diſputation, That whereas that chiefly aims at the ſubtilty of its deductions and concluſions, without much regard to the firſt ground-work, which ought to be well laid on the ſenſe and memory, ſo this intends the right ordering of them all, and making them ſerviceable to each other. In which diſcourſe I do not underſtand, firſt, what they mean by our power over natural cauſes and effects; for we have no power at all over natural cauſes and effects, but onely one particular effect may have ſome power over another, which are natural actions; but neither can natural cauſes nor effects be over-powred by man ſo, as if man was a degree above Nature, but they muſt be as Nature is pleaſed to order them; for Man is but a ſmall part, and his powers are but particular actions of Nature, and therefore he cannot have a ſupreme and abſolute power. Next, I ſay, That Senſe, which is more apt to be deluded then Reaſon, cannot be the ground of Reaſon, no more then Art can be the ground of Nature: Wherefore diſcourſe ſhall ſooner find or trace Natures corporeal figurative motions, then deluding Arts can inform the Senſes; For how can a Fool

Fool order his underſtanding by Art, if Nature has made it defective? or how can a wiſe man truſt his ſenſes, if either the objects be not truly preſented according to their natural figure and ſhape, or if the ſenſes be defective, either through age, ſickneſs, or other accidents, which do alter the natural motions proper to each ſenſe? And hence I conclude, that Experimental and Mechanick Philoſophy cannot be above the Speculative part, by reaſon moſt Experiments have their riſe from the Speculative, ſo that the Artiſt or Mechanick is but a ſervant to the Student.

3. *Of* Micrography, *and of* Magnifying *and* Multiplying Glaſſes.

ALthough I am not able to give a ſolid judgment of the Art of *Micrography*, and the ſeveral dioptrical inſtruments belonging thereto, by reaſon I have neither ſtudied nor practiſed that Art; yet of this I am confident, that this ſame Art, with all its Inſtruments, is not able to diſcover the interior natural motions of any part or creature of Nature; nay, the queſtions is, whether it can repreſent yet the exterior ſhapes and motions ſo exactly, as naturally they are; for Art doth more eaſily alter then inform: As for example; Art makes Cylinders, Concave and Convex-glaſſes, and the like, which repreſent the figure of an object in no part exactly and truly, but very deformed and miſ-

ſhaped:

ſhaped: alſo a Glaſs that is flaw'd, crack'd, or broke, or cut into the figure of Lozanges, Triangles, Squares, or the like, will preſent numerous pictures of one object. Beſides, there are ſo many alterations made by ſeveral lights, their ſhadows, refractions, reflexions, as alſo ſeveral lines, points, mediums, interpoſing and intermixing parts, forms and poſitions, as the truth of an object will hardly be known; for the perception of ſight, and ſo of the reſt of the ſenſes, goes no further then the exterior Parts of the object preſented; and though the Perception may be true, when the object is truly preſented, yet when the preſentation is falſe, the information muſt be falſe alſo. And it is to be obſerved, that Art, for the moſt part, makes hermaphroditical, that is, mixt figures, as partly Artificial, and partly Natural: for Art may make ſome metal, as Pewter, which is between Tin and Lead, as alſo Braſs, and numerous other things of mixt natures; In the like manner may Artificial Glaſſes preſent objects, partly Natural, and partly Artificial; nay, put the caſe they can preſent the natural figure of an object, yet that natural figure may be preſented in as monſtrous a ſhape, as it may appear miſ-ſhapen rather then natural: For example; a Lowſe by the help of a Magnifying-glaſs, appears like a Lobſter, where the Microſcope enlarging and magnifying each part of it, makes them bigger and rounder then naturally they are. The truth

is,

is, the more the figure by Art is magnified, the more it appears miſ-ſhapen from the natural, in ſo much as each joynt will appear as a diſeaſed, ſwell'd and tumid body, ready and ripe for inciſion. But miſtake me not; I do not ſay, that no Glaſs preſents the true picture of an object; but onely that Magnifying, Multiplying, and the like optick Glaſſes, may, and do oftentimes preſent falſly the picture of an exterior object; I ſay, the Picture, becauſe it is not the real body of the object which the Glaſs preſents, but the Glaſs onely figures or patterns out the picture preſented in and by the Glaſs, and there may eaſily miſtakes be committed in taking Copies from Copies. Nay, Artiſts do confeſs themſelves, that Flies, and the like, will appear of ſeveral figures or ſhapes, according to the ſeveral reflections, refractions, mediums and poſitions of ſeveral lights; which if ſo, how can they tell or judg which is the trueſt light, poſition, or medium, that doth preſent the object naturally as it is? and if not, then an edge may very well ſeem flat, and a point of a needle a globe; but if the edge of a knife, or point of a needle were naturally and really ſo as the microſcope preſents them, they would never be ſo uſeful as they are; for a flat or broad plain-edged knife would not cut, nor a blunt globe pierce ſo ſuddenly another body, neither would or could they pierce without tearing and rending, if their bodies were ſo uneven; and if the Picture of a young beautiful Lady ſhould be

drawn according to the repreſentation of the Micro-ſcope, or according to the various refraction and re-flection of light through ſuch like glaſſes, it would be ſo far from being like her, as it would not be like a humane face, but rather a Monſter, then a picture of Nature. Wherefore thoſe that invented Microſcopes, and ſuch like dioptrical Glaſſes, at firſt, did, in my opinion, the world more injury then benefit; for this Art has intoxicated ſo many mens brains, and wholly imployed their thoughts and bodily actions about phænomena, or the exterior figures of objects, as all better Arts and Studies are laid aſide; nay, thoſe that are not as earneſt and active in ſuch imployments as they, are, by many of them, accounted unprofitable ſubjects to the Commonwealth of Learning. But though there be numerous Books written of the wonders of theſe Glaſſes, yet I cannot perceive any ſuch, at beſt, they are but ſuperficial wonders, as I may call them. But could Experimental Philoſophers find out more beneficial Arts then our Fore-fathers have done, either for the better increaſe of Vegetables and brute Animals to nouriſh our bodies, or better and commodious contrivances in the Art of Architecture to build us houſes, or for the advancing of trade and traffick to provide neceſſaries for us to live, or for the decreaſe of nice diſtinctions and ſophiſtical diſputes in Churches, Schools and Courts of Judicature, to make men live in unity, peace and neighbourly friendſhip, it would not onely be worth

worth their labour, but of as much praiſe as could be given to them: But as Boys that play with watry Bubbles [a], or fling Duſt [b] into each others Eyes, or make a Hobby-horſe [c] of Snow, are worthy of reproof rather then praiſe, for waſting their time with uſeleſs ſports; ſo thoſe that addict themſelves to unprofitable Arts, ſpend more time then they reap benefit thereby. Nay, could they benefit men either in Husbandry, Architecture, or the like neceſſary and profitable imployments, yet before the Vulgar ſort would learn to underſtand them, the world would want Bread to eat, and Houſes to dwell in, as alſo Cloths to keep them from the inconveniences of the inconſtant weather. But truly, although Spinſters were moſt experienced in this Art, yet they will never be able to ſpin Silk, Thred, or Wool, *&c.* from looſe Atomes; neither will Weavers weave a Web of Light from the Sun's Rays, nor an Architect build an Houſe of the bubbles of Water and Air, unleſs they be Poetical Spinſters, Weavers and Architects; and if a Painter ſhould draw a Lowſe as big as a Crab, and of that ſhape as the Microſcope preſents, can any body imagine that a Beggar would believe it to be true? but if he did, what advantage would it be to the Beggar? for it doth neither inſtruct him how to avoid breeding them, or how to catch them, or to hinder them from biting. Again: if a Painter ſhould paint Birds according to thoſe Colours the Microſcope preſents, what advantage would it be for

[a] *Glaſs-tubes.*
[b] *Atomes.*
[c] *Exterior figures.*

Fowlers

Fowlers to take them? Truly, no Fowler will be able to diſtinguiſh ſeveral Birds through a Microſcope, neither by their ſhapes nor colours; They will be better diſcerned by thoſe that eat their fleſh, then by Micrographers that look upon their colours and exterior figures through a Magnifying-glaſs. In ſhort, Magnifying-glaſſes are like a high heel to a ſhort legg, which if it be made too high, it is apt to make the wearer fall, and at the beſt, can do no more then repreſent exterior figures in a bigger, and ſo in a more deformed ſhape and poſture then naturally they are; but as for the interior form and motions of a Creature, as I ſaid before, they can no more repreſent them, then Teleſcopes can the interior eſſence and nature of the Sun, and what matter it conſiſts of; for if one that never had ſeen Milk before, ſhould look upon it through a Microſcope, he would never be able to diſcover the interior parts of Milk by that inſtrument, were it the beſt that is in the World; neither the Whey, nor the Butter, nor the Curds. Wherefore the beſt optick is a perfect natural Eye, and a regular ſenſitive perception, and the beſt judg is Reaſon, and the beſt ſtudy is Rational Contemplation joyned with the obſervations of regular ſenſe, but not deluding Arts; for Art is not onely groſs in compariſon to Nature, but, for the moſt part, deformed and defective, and at beſt produces mixt or hermaphroditical figures, that is, a third figure between Nature and Art: which proves, that natural Reaſon

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is above artificial Senſe, as I may call it: wherefore thoſe Arts are the beſt and ſureſt Informers, that alter Nature leaſt, and they the greateſt deluders that alter Nature moſt, I mean, the particular Nature of each particular Creature; (for Art is ſo far from altering Infinite Nature, that it is no more in compariſon to it, then a little Flie to an Elephant, no not ſo much; for there is no compariſon between finite and Infinite.) But wiſe Nature taking delight in variety, her parts, which are her Creatures, muſt of neceſsity do ſo too.

4. *Of the Production of Fire by a Flint and Steel.*

SOme learned Writers of Micrography, having obſerved the fiery ſparks that are ſtruck out by the violent motion of a Flint againſt Steel, ſuppoſe them to be little parcels either of the Flint or Steel, which by the violence of the ſtroke, are at the ſame time ſevered and made red hot; nay, ſometimes to ſuch a degree as they are melted together into glaſs. But whatſoever their opinion be, to my ſenſe and reaſon it appears very difficult to determine exactly how the production of Fire is made, by reaſon there are ſo many different ſorts of Productions in Nature, as it is impoſsible for any particular Creature to know or deſcribe them: Nevertheleſs, it is moſt probable, that thoſe two bodies do operate not by incorporeal but corporeal motions,

which either produce a third corporeal figure out of their own parts, or by ſtriking againſt each other, do alter ſome of their natural corporeal figurative parts, ſo as to convert them into fire, which if it have no fuel to feed on, muſt of neceſsity die; or it may be, that by the occaſion of ſtriking againſt each other, ſome of their looſer parts are metamorphoſed, and afterwards return to their former figures again; like as fleſh being bruiſed and hurt, becomes numb and black, and after returns again to its proper figure and colour; or like as Water that by change of motion in the ſame parts, turns into Snow, Ice, or Hail, may return again into its former figure and ſhape; for Nature is various in her corporeal figurative motions. But it is obſervable, that Fire is like ſeeds of Corn ſown in Earth, which increaſes or decreaſes according as it has nouriſhment; by which we may ſee that Fire is not produced from a bare immaterial motion (as I ſaid before;) for a ſpiritual iſſue cannot be nouriſhed by a corporeal ſubſtance, but it is with Fire as it is with all, at leaſt moſt other natural Creatures, which require Reſpiration as well as Perception; for Fire requires Air as well as Animals do. By Reſpiration, I do not mean onely that animal reſpiration which in Man, and other animal Creatures, is performed by the lungs, but a dividing and uniting, or ſeparating and joyning of parts from and to parts, as of the exterior from and to the interior, and of the interior from and to the exterior; ſo that when ſome

parts

parts iſſue, others do enter : And thus by the name of Reſpiration I underſtand a kind of Reception of forreign Matter, and emiſsion of ſome of their own; as for example, in Animals, I mean not onely the reſpiration performed by the lungs, but alſo the reception of food, and of other matter entering through ſome proper organs and pores of their bodies, and the diſcharging of ſome other matter the ſame way; and if this be ſo, as ſurely it is, then all or moſt Creatures in Nature have ſome kind of Reſpiration or Reciprocal breathing, that is, Attraction and Expiration, receiving of nouriſhment and evacuation, or a reception of ſome forreign parts, and a diſcharging and venting of ſome of their own. But yet it is not neceſſary that all the matter of Reſpiration in all Creatures ſhould be Air; for every ſort of Creatures, nay every particular has ſuch a matter of Reſpiration, as is proper both to the nature of its figure, and proper for each ſort of reſpiration. Beſides, although Air may be a fit ſubſtance for Reſpiration to Fire, and to ſome other Creatures, yet I cannot believe, that the ſole agitation of Air is the cauſe of Fire, no more then it can be called the cauſe of Man; for if this were ſo, then Houſes that are made of Wood, or cover'd with Straw, would never fail to be ſet on fire by the agitation of the Air. Neither is it requiſite that all Reſpirations in all Creatures ſhould be either hot or cold, moiſt or dry, by reaſon there are many different ſorts of Reſpiration, acording to the nature and propriety

priety of every Creature, whereof ſome may be hot, ſome cold; ſome hot and dry, ſome cold and dry; ſome hot and moiſt, ſome cold and moiſt, *&c.* and in Animals, at leaſt in Mankind, I obſerve, that the reſpiration performed by the help of their lungs. is an attraction of ſome refrigerating air and an emiſsion of ſome warm vapour. What other Creatures reſpirations may be, I leave for others to inquire.

5. *Of Pores.*

AS I have mentioned in my former Diſcourſe, that I do verily believe all or moſt natural Creatures have ſome certain kind of reſpiration, ſo do I alſo find it moſt probable, that all or moſt natural Creatures have Pores: not empty Pores; for there can be no *Vacuum* in Nature, but ſuch paſſages as ſerve for reſpiration, which reſpiration is ſome kind of receiving and diſcharging of ſuch matter as is proper to the nature of every Creature: And thus the ſeveral Organs of Animal Creatures, are, for the moſt part, imployed as great large pores; for Nature being in a perpetual motion, is always diſſolving and compoſing, changing and ordering her ſelf-moving parts as ſhe pleaſes. But it is well to be obſerved, that there is difference between Perception and Reſpiration; for Perception is onely an action of Figuring or Patterning, when as the Rational and Senſitive Motions do

figure

figure or pattern out ſomething: but Reſpiration is an action of drawing, ſucking, breathing in, or receiving any ways outward parts, and of venting, diſcharging, or ſending forth inward parts. Next, although there may be Pores in moſt natural Creatures, by reaſon that all, or moſt have ſome kind of Reſpiration, yet Nature hath more ways of dividing and uniting of parts, or of ingreſs and egreſs, then the way of drawing in, and ſending forth by Pores; for Nature is ſo full of variety, that not any particular corporeal figurative motion can be ſaid the prime or fundamental, unleſs it be ſelf-motion, the Architect and Creator of all figures: Wherefore, as the Globular figure is not the prime or fundamental of all other figures, ſo neither can Reſpiration be called the prime or fundamental motion; for, as I ſaid, Nature has more ways then one, and there are alſo retentive Motions in Nature, which are neither dividing nor compoſing, but keeping or holding together.

6. *Of the Effluvium's of the Loadſtone.*

IT is the opinion of ſome, that the *Magnetical Effluviums do not proceed intrinſecally from the ſtone, but are certain extrinſecal particles, which approaching to the ſtone, and finding congruous pores and inlets therein, are channelled through it; and having acquired a motion thereby, do continue their current ſo far, till being repulſed*

by the ambient air, they recoil again, and return into a vortical motion, and ſo continue their revolution for ever through the body of the Magnet. But if this were ſo, then all porous bodies would have the ſame Magnetical Effluviums, eſpecially a Char-coal, which, they ſay, is full of deep pores: beſides, I can hardly believe, that any Microſcope is able to ſhew how thoſe flowing Atomes enter and iſſue, and make ſuch a vortical motion as they imagine. Concerning the argument drawn from the experiment, that *a Magnet being made red hot in the fire, not onely amits the Magnetical Vigor it had before, but acquires a new one*; doth not evince or prove that the Magnetical Effluviums are not innate or inherent in the ſtone; for fire may over-power them ſo as we cannot perceive their vigour or force, the motions of the Fire being too ſtrong for the motions of the Loadſtone; but yet it doth not follow hence, that thoſe motions of the Loadſtone are loſt, becauſe they are not perceived, or that afterwards when by cooling the Loadſtone they may be perceived again, they are not the ſame motions, but new ones, no more then when a man doth not move his hand the motion of it can be ſaid loſt or annihilated. But ſay they, *If the Polary direction of the Stone ſhould be thought to proceed intrinſecally from the Stone, it were as much as to put a Soul or Intelligence into the Stone, which muſt turn it about, as Angels are feigned to do Celeſtial Orbs.* To which I anſwer; That although the turning of the Celeſtial

Celeſtial Orbs by Angels may be a figment, yet that there is a ſoul and intelligence in the Loadſtone, is as true, as that there is a ſoul in Man. I will not ſay, that the Loadſtone has a ſpiritual or immaterial ſoul, but a corporeal or material one, to wit, ſuch a ſoul as is a particle of the ſoul of Nature, that is, of Rational Matter, which moves in the Loadſtone according to the propriety and nature of its figure. Laſtly, as for their argument concluding from the different effluviums of other, as for example, electrical and odoriferous bodies, *&c.* as Camphire, and the like, whoſe expirations, they ſay, fly away into the open air, and never make any return again to the body from whence they proceeded; I cannot believe this to be ſo; for if odoriferous bodies ſhould effluviate and waſte after that manner, then all ſtrong odoriferous bodies would be of no continuance, for where there are great expences, there muſt of neeeſsity follow a ſudden waſte: but the contrary is ſufficiently known by experience. Wherefore, it is more probable, that the Effluviums of the Loadſtone, as they call them, or the diſponent and directive faculty of turning it ſelf towards the North, is intrinſecally inherent in the ſtone it ſelf, and is nothing elſe but the interior natural ſenſitive and rational corporeal motions proper to its figure, as I have more at large declared in my Philoſophical Letters, and Philoſophical Opinions; then that a ſtream of exterior Atomes, by beating upon the ſtone, ſhould turn

turn it to and fro, until they have laid it in ſuch a poſition.

7. *Of the Stings of Nettles and Bees.*

I Cannot approve the opinion of thoſe, who believe that the ſwelling, burning, and ſmarting pain cauſed by the ſtinging of Nettles and Bees, doth proceed from a poyſonous juice, that is contained within the points of Nettles, or ſtings of Bees; for it is commonly known, that Nettles, when young, are often-times eaten in Sallets, and minced into Broths; nay, when they are at their full growth, good-huſwifes uſe to lay their Cream-cheeſes in great Nettles, whereas, if there were any poyſon in them, the interior parts of animal bodies, after eating them, would ſwell and burn more then the exterior onely by touching them. And as for ſtings of Bees, whether they be poyſonous or not, I will not certainly determine any thing, nor whether their ſtings be of no other uſe (as ſome ſay) then onely for defence or revenge; but this I know, that if a Bee once looſeth its ſting, it becomes a Drone; which if ſo, then ſurely the ſting is uſeful to the Bee, either in making Wax and Honey, or in drawing, mixing and tempering the ſeveral ſorts of juices, or in penetrating and piercing into Vegetables, or other bodies, after the manner of broaching or tapping, to cauſe the Liquor to iſſue out, or in framing the

ſtructure

ſtructure of their comb, and the like; for ſurely Nature doth not commonly make uſeleſs and unprofitable things, parts, or creatures: Neither doth her deſign tend to an evil effect, although I do not deny but that good and uſeful inſtruments may be and are often imployed in evil actions. The truth is, I find that ſtings are of ſuch kind of figures as fire is, and fire of ſuch a kind of figure as ſtings are; but although they be all of one general kind, nevertheleſs they are different in their particular kinds; for as Animal kind contains many ſeveral and different particular kinds or ſorts of animals, ſo the like do Vegetables, and other kinds of Creatures.

8. *Of the beard of a wild Oat.*

THoſe that have obſerved through a Microſcope the beard of a wild Oat, do relate that it is onely a ſmall black or brown briſtle, growing out of the ſide of the inner husk, which covers the grain of a wild Oat, and appears like a ſmall wreath'd ſprig with two clefts; if it be wetted in water, it will appear to unwreath it ſelf, and by degrees to ſtreighten its knee, and the two clefts will become ſtreight; but if it be ſuffered to dry again, it will by degrees wreath it ſelf again, and ſo return into its former poſture: The cauſe of which they ſuppoſe to be the differing texture of its parts, which ſeeming to have two ſubſtances, one very porous, looſe and ſpongy,

into which the watry ſteams of air may very eaſily be forced, which thereby will grow ſwell'd and extended; and a ſecond, more hard and cloſe, into which the water cannot at all or very little penetrate; and this retaining always the ſame dimenſions, but the other ſtretching and ſhrinking, according as there is more or leſs water or moiſture in its pores, 'tis thought to produce this unwreathing and wreathing. But that this kind of motion, whether it be cauſed by heat and cold, or by dryneſs and moiſture, or by any greater or leſs force, proceeding either from gravity and weight, or from wind, which is the motion of the air, or from ſome ſpringing body, or the like, ſhould be the very firſt foot-ſtep of ſenſation and animate motion, and the moſt plain, ſimple and obvious contrivance that Nature has made uſe of to produce a motion next to that of rarefaction and condenſation by heat and cold, as their opinion is, I ſhall not eaſily be perſwaded to believe; for if Animate motion was produced this way, it would, in my opinion, be but a weak and irregular motion. Neither can I conceive how theſe, or any other parts, could be ſet a moving, if Nature her ſelf were not ſelf-moving, but onely moved: Nor can I believe, that the exterior parts of objects are able to inform us of all their interior motions; for our humane optick ſenſe looks no further then the exterior and ſuperficial parts of ſolid or denſe bodies, and all Creatures have ſeveral corporeal figurative motions one within another, which

cannot

cannot be perceived neither by our exterior ſenſes, nor by their exterior motions; as for example, our Optick ſenſe can perceive and ſee through a tranſparent body, but yet it cannot perceive what that tranſparent bodies figurative motions are, or what is the true cauſe of its tranſparentneſs; neither is any Art able to aſsiſt our ſight with ſuch optick inſtruments as may give us a true information thereof; for what a perfect natural eye cannot perceive, ſurely no glaſs will be able to preſent.

9. *Of the Eyes of Flies.*

I Cannot wonder enough at the ſtrange diſcovery made by the help of the Microſcope concerning the great number of eyes obſerved in Flies; as that, for example, in a gray Drone-flie ſhould be found cluſters which contain about 14000 eyes: which if it be really ſo, then thoſe Creatures muſt needs have more of the optick ſenſe then thoſe that have but two, or one eye; for any reaſon cannot believe, that ſo many numerous eyes ſhould be made for no more uſe then one or two eyes are: for though Art, the emulating Ape of Nature, makes often vain and uſeleſs things, yet I cannot perceive that Nature her ſelf doth ſo. But a greater wonder it is to me, that Man with the twinkling of one eye, can obſerve ſo many in ſo ſmall a Creature, if it be not a deceit of the optick inſtrument: for as I have

have mentioned above, Art produces moſt commonly hermaphroditical figures, and it may be, perhaps, that thoſe little pearls or globes, which were taken for eyes in the mentioned Flie, are onely tranſparent knobs, or gloſsie ſhining ſpherical parts of its body, making refractions of the rayes of light, and reflecting the pictures of exterior objects, there being many Creatures, that have ſuch ſhining protuberances and globular parts, and thoſe full of quick motion, which yet are not eyes. Truly, my reaſon can hardly be perſwaded to believe, that this Artificial Informer (I mean the Microſcope) ſhould be ſo true as it is generally thought; for in my opinion it more deludes, then informs: It is well known, that if a figure be longer, broader and bigger then its nature requires, it is not its natural figure, and therefore thoſe Creatures, or parts of Creatures, which by Art appear bigger then naturally they are, cannot be judged according to their natural figure, ſince they do not appear in their natural ſhape; but in an artificial one, that is, in a ſhape or figure magnified by Art, and extended beyond their natural figure; and ſince Man cannot judg otherwiſe of a figure then it appears, beſides, if the Reflections and Poſitious of Light be ſo various and different as Experimental Philophers confeſs themſelves, and the inſtrument not very exact, (for who knows but hereafter there may be many faults diſcovered of our modern Microſcopes which

we

we are not able to perceive at the preſent) how ſhall the object be truly known? Wherefore I can hardly believe the Truth of this Experiment concerning the numerous Eyes of Flies; they may have, as I ſaid before, gloſſy and ſhining globular protuberances, but not ſo many eyes; as for example, Bubbles of Water, Ice, as alſo Bliſters and watry Pimples, and hundreds the like, are ſhining and tranſparent Hemiſpheres, reflecting light, but yet not eyes; Nay, if Flies ſhould have ſo many numerous Eyes, why can they not ſee the approach of a Spider until it be juſt at them; alſo how comes it that ſometimes, as for example, in cold weather, they ſeem blind, ſo as one may take or kill them, and they cannot ſo much as perceive their enemies approach? ſurely if they had 14000 Eyes, all this number would ſeem uſeleſs to them, ſince other Creatures which have but two can make more advantage of thoſe two eyes, then they of their vaſt number. But perchance ſome will ſay, That Flies having ſo many eyes, are more apt to be blind then others that have but few, by reaſon the number is the cauſe that each particular is the weaker. To which I anſwer, That if two Eyes be ſtronger then a Thouſand, then Nature is to be blamed that ſhe gives ſuch numbers of Eyes to ſo little a Creature. But Nature is wiſer then we or any Creature is able to conceive; and ſurely ſhe works not to no purpoſe, or in vain; but there appears as much wiſdom in the fabrick and ſtructure of her

works, as there is variety in them. Laſtly, I cannot well conceive the truth of the opinion of thoſe, that think all eyes muſt have a tranſparent liquor, or humor within them, for in Crabs and Lobſters Eyes I can perceive none ſuch; and there may alſo be many other animal Creatures which have none: for Nature is not tied to one way, but as ſhe makes various Creatures, ſo ſhe may and doth alſo make their parts and organs variouſly, and not the ſame in all, or after one and the ſame manner or way.

10. *Of a Butter-flie.*

COncerning the Generation of Butter-flies, whether they be produced by the way of Eggs, as ſome Experimental Philoſophers do relate, or any other ways; or whether they be all produced after one and the ſame manner, ſhall not be my task now to determine; but I will onely give my Readers a ſhort account of what I my ſelf have obſerved: When I lived beyond the Seas in Baniſhment with my Noble Lord, one of my Maids brought upon an old piece of wood, or ſtone (which it was I cannot perfectly remember) ſomething to me which ſeemed to grow out of that ſame piece; it was about the length of half an inch or leſs, the tail was ſhort and ſquare, and ſeemed to be a Vegetable, for it was as green as a green ſmall ſtalk, growing out of the aforeſaid piece of ſtone or wood; the part

part next the tail was like a thin skin, wherein one might perceive a perfect pulſation, and was big in proportion to the reſt of the parts; The part next to that, was leſs in compaſs, and harder, but of ſuch a ſubſtance as it was like Pewter or Tin: The laſt and extreme part oppoſite to the firſt mentioned green tail or ſtalk, ſeem'd like a head, round, onely it had two little points or horns before, which head ſeem'd to the eye and touch, like a ſtone, ſo that this Creature appeared partly a Vegetable, Animal and Mineral; But what is more, it was in a continual motion, for the whole body of it ſeemed to ſtruggle as if it would get looſe from that piece of wood or ſtone the tail was joyned to, or out of which it grew; But I cutting and dividing its tail from the ſaid piece, it ceaſed to move, and I did not regard it any further. After ſome while I found juſt ſuch another inſect, which I laid by upon the window, and one morning I ſpied two Butter-flies playing about it; which, knowing the window had been cloſe ſhut all the while, and finding the inſect all empty, and onely like a bare ſhell or skin, I ſuppoſed had been bred out of it; for the ſhell was not onely hollow and thin, but ſo brittle as it ſtraight fell into pieces, and did ſomewhat reſemble the skin of a Snake when it is caſt; and it is obſervable, that two Butter-flies were produced out of one ſhell, which I ſuppoſed to be male and female. But yet this latter I will not certainly affirm, for I could not diſcern them with my eyes, except I had had ſome Microſcope,

croſcope, but a thouſand to one I might have been alſo deceived by it; and had I opened this inſect, or ſhell, at firſt, it might perhaps have given thoſe Butter-flies an untimely death, or rather hinder'd their production. This is all I have obſerved of Butter-flies, but I have heard alſo that Caterpillars are transformed into Butter-flies; whether it be true or not, I will not diſpute, onely this I dare ſay, that I have ſeen Caterpillers ſpin as Silk-worms do, an oval ball about their ſeed, or rather about themſelves.

11. *Of the Walking Motions of Flies, and other Creatures.*

WHat Experimental Writers mention concerning the feet of Flies, and their ſtructure, to wit, that they have two claws or talons, and two palms or ſoles, by the help of which they can walk on the ſides of glaſs, or other ſmooth bodies perpendicularly upwards; If this be the onely reaſon they can give, then certainly a Dormouſe muſt have the ſame ſtructure of feet; for ſhe will, as well as a flie, run ſtreight upwards on the ſharp edg of a glazed or well-poliſhed Sword, which is more difficult then to run up the ſides of Glaſs: And as for Flies, that they can ſuſpend themſelves againſt the underſurface of many bodies; I ſay, not onely Flies, but many other Creatures will do the ſame; for not onely great Caterpillers, or ſuch worms as have many leggs, as alſo Spiders, but a

Neut,

Neut, which is but a little Creature, will run up a wall in a perpendicular line; nay, walk as Flies do with its back down, and its leggs upwards. Wherefore it is not, in my opinion, the Pores of the ſurface of the body, on which thoſe Creatures walk; as for example, that a Flie ſhould run the tenters or points of her feet, which ſome have obſerved through a Microſcope, into the pores of ſuch bodies ſhe walks on, or make pores where ſhe finds none; (for I cannot believe, that in ſuch cloſe and denſe bodies, where no pores at all can be perceived, a ſmall and weak legg of a Flie ſhould pierce a hole ſo ſuddenly, and with one ſtep) Nor an Imaginary Glue, nor a dirty or ſmoaky ſubſtance adhering to the ſurface of glaſs, as ſome do conceive; nor ſo much the lightneſs of their bodies that makes thoſe Creatures walk in ſuch a poſture; for many can do the ſame that are a thouſand times heavier then a little Flie; but the chief cauſe is the ſhape of their bodies; which being longer then they are deep, one counterpoiſes the other; for the depth of their bodies has not ſo much weight as their length, neither are their heads and leggs juſt oppoſite: Beſides, many have a great number of feet, which may eaſily bear up the weight of their bodies; and although ſome Creatures, as Horſes, Sheep, Oxon, *&c.* have their leggs ſet on in the ſame manner as Mice, Squirrels, Cats, *&c.* yet they cannot run or climb upwards and downwards in a perpendicular line, as well as theſe Creatures do, by reaſon of the depth

of their bodies from the ſoles of their feet to the ſurface of their back, the weight of their depth over-powering the ſtrength of their leggs. Wherefore the weight of a Creature lies for the moſt part in the ſhape of its body, which ſhape gives it ſuch ſorts of actions as are proper for it; as for example, a Bird flies by its ſhape, a Worm crawls by its ſhape, a Fiſh ſwims by its ſhape, and a heavy Ship will bear it ſelf up on the ſurface of water meerly by its exterior ſhape, it being not ſo much the interior figure or nature of Wood that gives it this faculty of bearing up, by reaſon we ſee that many pieces of Timber will ſink down to the bottom in water. Thus Heavineſs and Lightneſs is for the moſt part cauſed by the ſhape or figure of the body of a Creature, and all its exterior actions depend upon the exterior ſhape of its body.

Whether it be poſsible to make Man and other Animal Creatures that naturally have no Wings, flie as Birds do.

SOme are of opinion, that it is not impoſsible to make Man, and ſuch other Creatures that naturally have no wings, flie as Birds do; but I have heard my Noble Lord and Husband give good reaſons againſt it; For when he was in *Paris*, he diſcourſing one time with Mr. *H.* concerning this ſubject, told him that he thought it altogether impoſsible to be done: A Man, ſaid

ſaid he, or the like animal that has no Wings, has his arms ſet on his body in a quite oppoſite manner then Birds wings are; for the concave part of a Birds wing, which joins cloſe to his body, is in man outward; and the inward part of a mans arm where it joins to his body, is in Birds placed outward; ſo that which is inward in a Bird, is outward in Man; and what is inward in Man, is outward in Birds; which is the reaſon that a Man has not the ſame motion of his arm which a Bird has of his wing. For Flying is but ſwimming in the Air; and Birds, by the ſhape and poſture of their wings, do thruſt away the air, and ſo keep themſelves up; which ſhape, if it were found the ſame in Mans arms, and other animals leggs, they might perhaps flie as Birds do, nay, without the help of Feathers; for we ſee that Bats have but fleſh-wings; neither would the bulk of their bodies be any hinderance to them; for there be many Birds of great and heavy bodies, which do nevertheleſs flie, although more ſlowly, and not ſo nimbly as Flies, or little Birds: Wherefore it is onely the different poſture and ſhape of Mens arms, and other Animals leggs, contrary to the wings of Birds, that makes them unapt to flie, and not ſo much the bulk of their bodies. But I believe, that a four-legg'd Creature, or Animal, may more eaſily and ſafely go upright like Man, although it hath its leggs ſet on in a contrary manner to Mans arms and leggs;

leggs; for a four-legg'd animals hind-leggs reſemble man's arms, and its fore-leggs are juſt as man's leggs. Nevertheleſs there is no Art that can make a four legg'd Creature imitate the actions of man, no more then Art can make them have or imitate the natural actions of a Bird: For, Art cannot give new motions to natural parts, which are not proper or natural for them, but each part muſt have ſuch proper and natural motions and actions as Nature has deſigned for it. I will not ſay, but Art may help to mend ſome defects, errors or irregularities in Nature, but not make better that which Nature has made perfect already. Neither can we ſay Man is defective, becauſe he cannot flie as Birds: for flying is not his natural and proper motion; We ſhould rather account that Man monſtrous that could flie, as having ſome motion not natural and proper to his figure and ſhape; for that Creature is perfect in its kind, that has all the motions which are naturally requiſite to the figure of ſuch a kind: But Man is apt to run into extreams, and ſpoils Nature with doting too much upon Art.

13. *Of Snails and Leeches, and whether all Animals have blood.*

WHether Snails have a row of ſmall teeth, orderly placed in the Gums, and divided into ſeveral ſmaller and greater; or whether they have but one ſmall bended hard bone, which ſerves them inſtead of teeth, to bite out pretty large and half-round bits of the leaves of trees to feed on, Experimental Philoſophers may enquire by the help of their Microſcopes; My opinion is, That Snails are like Leeches, which will not onely bite, but ſuck; but this I do verily believe, that Snails onely bite Vegetables, not Animals, as Leeches do; and though Leeches bite into the skin, yet they do not take any part away, but ſuck onely out the juicy part, that is, the blood, and leave the groſſer ſubſtance of fleſh behind; and ſo do Snails bite into herbs, to ſuck out the juicy ſubſtance, or elſe there would be found fleſh in Leeches, and herbs in Snails, which is not; ſo that Snails and Leeches bite for no end, but onely to make a paſſage to ſuck out the juicy parts; and therefore I cannot perceive that they have bones, but I conceive their teeth or parts they pierce withal, to be ſomewhat of the nature of ſtings, which are no more Bones then the points of Fire are; I do not certainly affirm they are ſtings, but my meaning is, that they are pointed or piercing figures, that is, as I ſaid, of the nature

of ſtings, there being many ſeveral ſorts of pointed and piercing figures, which yet are not ſtings, like as there are ſeveral ſorts of grinding and biting figures which are not teeth; for there are ſo many ſeveral ſorts of figures in Vegetables, Minerals, Animals and Elements, as no particular Creature is able to conceive. Again, it is queſtioned, whether thoſe Creatures that ſuck blood from others, have blood themſelves, as naturally belonging to their own ſubſtance; and my opinion is, that it is no neceſſary conſequence, that that ſhould be a part of their ſubſtance on which they feed; food may be converted into the ſubſtance of their bodies by the figurative transforming motions, but it is not part of their ſubſtance before it is converted; and ſo many Creatures may feed on blood, but yet have none of themſelves as a natural conſtitutive part of their being: beſides, there are Maggots, Worms, and ſeveral ſorts of Flies, and other Creatures, that feed upon fruits and herbs, as alſo Lobſters, Crabs, *&c.* which neither ſuck blood, nor have blood; and therefore blood is not requiſite to the life of every animal, although it is to the life of man, and ſeveral other animal Creatures; Neither do I believe, that all the juice in the veins, is blood (as ſome do conceive) for ſome of the juice may be in the way of being blood, and ſome may have altered its nature from being blood, to corruption, which later will never be blood again, and ſome may onely be metamorphoſed from blood, and

reaſſume

reaſſume its own colour again; for it is as natural for blood to be red, as for the Sun to be light: Wherefore when ſome learned are of opinion, that thoſe white, or yellow, or black juices which are found in the veins of ſmall inſects, are their blood, they might as well ſay, that brains are blood, or that the marrow in the bones, is blood; or if the brain ſhould all be turned to water, ſay, that this water is brains; which would be as much as if one ſhould call a mans body turned to duſt and aſhes, an animal Creature, or a man; for there are natural properties which belong to every Creature, and to each particular part of a Creature, and ſo is blood in ſome animals a natural vital part proper to the conſervation of its life, without which it cannot ſubſiſt: for example, a young Maid in the Green-ſickneſs, when her veins are fuller of water, then blood, appears pale, and is always ſickly, weak and faint, not able to ſtir, by reaſon her veins are fuller of water then blood, but were it all water, ſhe would preſently die. Wherefore all juices are not blood; nay, I cannot believe as yet, that thoſe they call veins in ſome inſects, are veins, much leſs that they contain blood, and have a circulation of blood, nor that their motions proceed from Muſcles, Nerves and Tendons; but this I may ſay, that the veins are the proper and convenient vehicles or receptacles of blood, as the head is of brains, and the bones of marrow; alſo it is as proper for blood to be red, as for veins to contain blood, for bones to contain

marrow,

marrow, and for the head to contain brains; and when they alter or change from their particular natures, they are no more blood, brains nor marrow: Wherefore thoſe Creatures that have a juice which is not red, have no blood; and if no blood, they have no veins. I will not ſay, that all thoſe that have veins muſt of neceſsity have them full of blood; for in Dropſies, as alſo in the Green-ſickneſs, as I mentioned above, they are fuller of water then blood, but they muſt of neceſsity have ſome blood in their veins, by reaſon the veins are the moſt proper receptacles for blood, and no man can live without blood, but when all blood is turned to water, he muſt of neceſsity die.

14. *Of Natural Productions.*

I Cannot wonder with thoſe, who admire that a Creature which inhabits the air, doth yet produce a Creature, that for ſome time lives in the water as a fiſh, and afterward becomes an inhabitant of the air, for this is but a production of one animal from another; but what is more, I obſerve that there are productions of and from Creatures of quite different kinds; as for example, that Vegetables can and do breed Animals, and Animals, Minerals and Vegetables, and ſo forth: Neither do I ſo much wonder at this, becauſe I obſerve that all Creatures of Nature are produced

produced but out of one matter, which is common to all, and that there are continual and perpetual generations and productions in Nature, as well as there are perpetual diſſolutions. But yet I cannot believe, that ſome ſorts of Creatures ſhould be produced on a ſudden by the way of tranſmigration or tranſlation of parts, which is the moſt uſual way of natural productions; for both natural and artificial productions are performed by degrees, which requires time, and is not done in an inſtant. Neither can I believe, that all natural things are produced by the way of ſeeds or eggs; for when I conſider the variety of Nature, it will not give me leave to think that all things are produced after one and the ſame manner or way, by reaſon the figurative motions are too different, and too diverſly various, to be tied to one way of acting in all productions; Wherefore as ſome Productions are done by the way of tranſmigration or tranſlation of parts, as for example, the Generation of Man, and other Animals, and others by a bare Metamorphoſis or Transformation of their own parts into ſome other figure, as in the Generation of Maggots out of Cheeſe, or in the production of Ice out of water, and many the like, ſo each way has its own particular motions, which no particular Creature can perfectly know. I have mentioned in my Philoſophical Letters, that no animal Creature can be produced by the way of Metamorphoſing, which is a change of Motions in the ſame parts of Matter, but (as *Sect. 4. Let. 2*

I do alſo expreſs in the ſame place) I mean ſuch animals which are produced one from another, and where the production of one is not cauſed by the deſtruction of the other; ſuch Creatures, I ſay, it is impoſsible they ſhould be produced by a bare Metamorphoſis, without Tranſmigration or Tranſlation of parts from the Generator: but ſuch inſects, as Maggots, and ſeveral ſorts of Worms and Flies, and the like, which have no Generator of their own kind, but are bred out of Cheeſe, Earth and Dung, *&c.* their Production is onely by the way of Metamorphoſing, and not Tranſlation of parts. Neither can I believe, as ſome do, that the Sun is the common Generator of all thoſe inſects that are bred within the Earth; for there are not onely Productions of Minerals and Vegetables, but alſo of Animals in the Earth deeper then the Sun can reach, and the heat of the Sun can pierce no further then cold can, which is not above two yards from the ſurface of the Earth, at leaſt in our climate: But why may not the Earth, without the help of the Sun, produce Animal Creatures, as well as a piece of Cheeſe in a deep Cellar, where neither the Sun nor his Beams enter? Truly, I wonder men will confine all Productions to one principal agent, and make the Sun the common Generator of all or moſt living inſects, and yet confeſs that Nature is ſo full of variety, and that the Generations and Productions of inſects are ſo various, as not onely the ſame kind of Creature may be produced from

ſeveral

ſeveral kinds of ways, but the very ſame Creature may produce ſeveral kinds. Nevertheleſs, I believe that natural Creatures are more numerouſly and variouſly produced by diſſolution of particulars by the way of Metamorphoſing, then by a continued propagation of their own ſpecies by the way of tranſlation of parts; and that Nature hath many more ways of Productions, then by ſeeds or ſeminal Principles, even in Vegetables, witneſs the Generation or Production of Moſs, and the like Vegetables that grow on Stones, Walls, dead Animals ſculls, tops of houſes, *&c.* ſo that he who doth confine Nature but to one way of acting or moving, had better to deprive her of all motion, for Nature being Infinite, has alſo infinite ways of acting in her particulars. Some are of opinion, that the ſeed of Moſs being exceeding ſmall and light, is taken up, and carried to and fro in the air into every place, and by the falling drops of rain, is waſh'd down out of it, and ſo diſperſed into all places, and there takes onely root and propagates where it finds a convenient ſoil for it to thrive in; but this is onely a wild fancy, and has no ground, and no experimental Writer ſhall ever perſwade me, that by his Dioptrical glaſſes he has made any ſuch experiment; wherefore I inſiſt upon ſenſe and reaſon, which inform me of the various productions of Nature, which cannot be reduced to one principal kind, but are more numerous then mans particular and finite reaſon can conceive. Neither is it a wonder to ſee

— Plants

Plants grow out of the Earth without any waſte of the Earth, by reaſon there are perpetual compoſitions and diviſions in Nature, which are nothing elſe but an uniting and disjoyning of parts to and from parts, and prove that there is an interchangeable ingreſs and egreſs, or a reciprocal breathing in all Natures parts, not perceptible by man; ſo that no man can tell the aſſociation of parts, and growing motions of any one, much leſs of all Creatures.

15. *Of the Seeds of Vegetables.*

SOme do call the ſeeds of Vegetables, *the Cabinet of Nature, wherein are laid up her Jewels*; but this, in my opinion, is a very hard and improper expreſsion; for I cannot conceive what Jewels Nature has, nor in what Cabinet ſhe preſerves them. Neither are the ſeeds of Vegetables more then other parts or Creatures of Nature: But I ſuppoſe ſome conceive Nature to be like a Granary or Store-houſe of Pine-barley, or the like; which if ſo, I would fain know in what grounds thoſe ſeeds ſhould be ſown to produce and increaſe; for no ſeeds can produce of themſelves if they be not aſsiſted by ſome other matter, which proves, that ſeeds are not the prime or principal Creatures in Nature, by reaſon they depend upon ſome other matter which helps them in their productions; for if ſeeds of Vegetables did lie never ſo long

long in a ſtore-houſe, or any other place, they would never produce until they were put into ſome proper and convenient ground: It is alſo an argument, that no Creature or part of Nature can ſubſiſt ſingly and preciſed from all the reſt, but that all parts muſt live together; and ſince no part can ſubſiſt and live without the other, no part can alſo be called prime or principal. Nevertheleſs all ſeeds have life as well as other Creatures; neither is it a Paradox to ſay, ſeeds are buried in life, and yet do live; for what is not in preſent act, we may call buried, intombed or inurned in the power of life; as for example, a man, when his figure is diſſolved, his parts diſperſed, and joyned with others, we may ſay his former form or figure of being ſuch a particular man is buried in its diſſolution, and yet liveth in the compoſition of other parts, or which is all one, he doth no more live the life of a Man, but the life of ſome other Creature he is transformed into by the transforming and figuring motions of Nature; nay, although every particle of his former figure were joyned with ſeveral other parts and particles of Nature, and every particle of the diſſolved figure were altered from its former figure into ſeveral other figures, nevertheleſs each of theſe Particles would not onely have life, by reaſon it has motion, but alſo the former figure would ſtill remain in all thoſe Particles, though diſperſed, and living ſeveral ſorts of lives, there being nothing in Nature that can be loſt or annihilated, but Nature is and con-

tinues ſtill the ſame as ſhe was, without the leaſt addition or diminution of any the leaſt thing or part, and all the varieties and changes of natural productions proceed onely from the various changes of Motion. But to return to ſeeds; ſome Experimental Writers have obſerved, that the ſeed of Corn-violets, which looks almoſt like a very ſmall Flea, through the Microſcope appears a large body cover'd with a tough, thick and bright reflecting skin, very irregularly ſhrunk and pitted, inſomuch that it is almoſt an impoſsibility to find two of them wrinkled alike, and wonder that there is ſuch variety even in this little ſeed: But to me it is no wonder, when I conſider the variety of Nature in all her works, not onely in the exterior, but alſo in the interior parts of every Creature; but rather a wonder to ſee two Creatures juſt alike each other in their exterior figures. And ſince the exterior figures of Creatures are not the ſame with the interior, but in many or moſt Creatures quite different, it is impoſsible that the exterior ſhape and ſtructure of bodies can afford us ſure and excellent inſtructions to the knowledg of their natures and interior motions, as ſome do conceive; for how ſhall a feather inform us of the interior nature of a Bird? we may ſee the exterior flying motions of a Bird by the help of its wings, but they cannot give us an information of the productive and figurative motions of all the interior parts of a Bird, and what makes it to be ſuch a Creature, no more then the exterior view of a mans head,

head, arms, legs, *&c.* can give an Information of his interior Parts, *viz.* the ſpleen, liver, lungs, *&c.* Alſo in Vegetables; although thoſe ſorts of Vegetables which are outwardly burning may be outwardly pointed, and they that are hot and burning within may be inwardly pointed, yet no Microſcope is able to preſent to our view thoſe inward points by the inſpection of the exterior figure and ſhape of thoſe Vegetables: Neither doth it follow, that all thoſe which are outwardly pointed, muſt needs be of a hot and burning nature, except they be alſo pointed inwardly. Nay although ſome particular Creatures ſhould ſeem to reſemble each other in their exterior ſhapes and figures ſo much as not to be diſtinguiſhed at the firſt view, yet upon better acquaintance we ſhall find a great difference betwixt them; which ſhews that there is more variety and difference amongſt Natures works, then our weak ſenſes are able to perceive; nay, more variety in one particular Creature, as for example, in Man, then all the kind or ſort of that Creature, *viz.* Mankind, is able to know. And if there be ſuch difference betwixt the exterior figures of Creatures of one ſort, what may there be betwixt their exterior ſhapes and interior natures? Nevertheleſs, although there be ſuch variety, not onely in the General kinds of Creatures, but in every Particular, yet there is but one ground or principle of all this variety, which is ſelf-motion, or ſelf-moving Matter. And I cannot enough admire the ſtrange

conceits

conceits of ſome men, who perceiving and believing ſuch a curious variety and various curioſity of Nature in the parts of her body, and that ſhe is in a perpetual motion, and knows beſt her own Laws, and the ſeveral proprieties of bodies, and how to adapt and fit them to her deſigned ends, nay, that God hath implanted a faculty of knowing in every Creature, do yet deny, nay, rail againſt Natures ſelf-moving power, condemning her as a dull, inanimate, ſenſeleſs and irrational body, as if a rational man could conceive, that ſuch a curious variety and contrivance of natural works ſhould be produced by a ſenſeleſs and irational motion; or that Nature was full of immaterial ſpirits, which did work Natural matter into ſuch various figures; or that all this variety ſhould be cauſed by an Immaterial motion, which is generated out of nothing, and annihilated in a moment; for no man can conceive or think of motion without body, and if it be above thought, then ſurely it is above act. But I rather ceaſe to wonder at thoſe ſtrange and irregular opinions of Man-kind, ſince even they themſelves do juſtifie and prove the variety of Nature; for what we call Irregularities in Nature, are really nothing but a variety of Natures motions; and therefore if all mens conceits, fancies and opinions were rational, there would not be ſo much variety as there is. Concerning thoſe that ſay, there is no variety in the Elemental Kingdom, as Air, Water, and Earth; Air

and

and Water having no form at all, unleſs a potentiality to be formed into globules, and that the clods and parcels of Earth are all Irregular. I anſwer, This is more then Man is able to know: But by reaſon their Microſcopes cannot make ſuch Hermaphroditical figures of the Elements, as they can of Minerals, Vegetables and Animals, they conclude there is no ſuch variety in them; when as yet we do plainly perceive that there are ſeveral ſorts of Air, Fire, Water, Earth, and no doubt but theſe ſeveral ſorts, and their particulars, are as variouſly figured as other Creatures: Truly it is no conſequence to deny the being of that which we do not ſee or perceive; for this were to attribute a Univerſal and Infinite knowledg to our weak and imperfect ſenſes. And therefore I cannot believe, that the Omnipotent Creator has written and engraven his moſt myſterious Deſigns and Counſels onely in one ſort of Creatures; ſince all parts of Nature, their various productions and curious contrivances, do make known the Omnipotency of God, not onely thoſe of little, but alſo thoſe of great ſizes; for in all figures, ſizes and actions is apparent the curious variety of Nature, and the Omnipotency of the Cretor, who has given Nature a ſelf-moving power to produce all theſe varieties in her ſelf; which varieties do evidently prove, that Nature doth not work in all Creatures alike: nor that ſhe has but one Primary or Principal ſort of motions by which ſhe produces all

Creatures, as ſome do conceive the manner of wreathing and unwreathing, which they have obſerved in the beard of a Wild-oat, mentioned before, to be the firſt foot-ſtep of ſenſation and animate motion, and the moſt plain, ſimple and obvious contrivance Nature has made uſe of to produce a motion next to that of rarefaction and condenſation by heat and cold; for this is a very wild and extravagant conceit, to meaſure the infinite actions of Nature according to the rule of one particular ſort of motions, which any one that has the perfect uſe of his ſenſe and reaſon may eaſily ſee, and therefore I need not to bring many arguments to contradict it.

16. *Of the Providence of Nature, and of ſome Opinions concerning Motion.*

CONcerning thoſe that ſpeak of the Providence of Nature,& the preſerving of Vegetables,to wit,that Nature is very curious and careful in preſerving their ſeminal principles,and lays them in moſt convenient,ſtrong and delicate cabinets for their ſafer protection from outward danger: I confeſs,Nature may make ſuch protections,that one Creature may have ſome defence from the injuries and aſſaults of its fellow-Creatures; but theſe aſſaults are nothing but diſſolving motions, as friendly and amiable aſſociations are nothing elſe but compoſing motions; neither can any thing be loſt in Nature,

Nature, for even the leaſt particle of Nature remains as long as Nature her ſelf. And if there be any Providence in Nature, then certainly Nature has knowledg and wiſdom; and if ſhe hath knowledg and wiſdom, then ſhe has ſenſe and reaſon; and if ſenſe and reaſon, then ſhe has ſelf-motion; and if Nature has ſelf-motion, then none of her parts can be called inanimate or ſoul-leſs: for Motion is the life and ſoul of Nature, and of all her parts; and if the body be animate, the parts muſt be ſo too, there being no part of the animate body of Nature that can be dead, or without motion; whereof an inſtance might be given of animal bodies, whoſe parts have all animal life, as well as the body it ſelf: Wherefore thoſe that allow a ſoul, or an informing, actuating and animating form or faculty in Nature and her parts, and yet call ſome parts inanimate or ſoul-leſs, do abſolutely contradict themſelves. And thoſe that ſay, all the varieties of Nature are produced, not by ſelf-motion, but that one part moves another, muſt at laſt come to ſomething that moves it ſelf: beſides, it is not probable, that one part moving another, ſhould produce all things ſo orderly and wiſely as they are in Nature. But thoſe that ſay Motion is no ſubſtance, and conſequently not material, and yet allow a generation and annihilation of Motion, ſpeak, in my opinion, *non*-ſence: for firſt, how can ſelf-motion, the Author and Producer of all things, work all the varieties that are in Nature, and be nothing it ſelf? Next, how

how can that which is nothing (for all that is not Material is nothing in Nature, or no part of Nature) be generated and annihilated? Nay, if Motion be Material, as ſurely it is, yet there can neither be a new generation, nor an annihilation of any particular Motion in Nature; for all that is material in Nature has its being in and from Infinite Matter, which is from Eternity, it being impoſsible that any other new Matter ſhould be created beſides this Infinite Matter out of which all natural things conſiſt, or that any part of this matter ſhould be loſt or annihilated. But perhaps thoſe that believe new generations and annihilations of particular motions, may ſay, that their opinion is not as if thoſe particular Motions were generated out of ſome new matter, but that the matter of ſuch motions is the ſame with the matter of all other natural Creatures, and that their periſhing or annihilation is not an utter deſtruction or loſs of their being out of Nature, but onely of being ſuch or ſuch a motion, like as ſome Vegetables and Elements are generated and periſh in one night: Truly, if their meaning be thus, then it were better to name it an alteration or change of Motion, rather then a new Generation, and a Periſhing or Annihilation. But my intention is not to plead for other mens opinions, but rather to clear my own, which is, that Motion is material; for Figure, Motion and Matter are but one thing; and that no particular Motion is or can be loſt in Nature, nor created

created anew; as I have declared more at large elſewhere.

17. Des Cartes *Opinion of Motion examined.*

I Cannot well apprehend what *Des Cartes* means, by Matter being at firſt ſet a moving by a ſtrong and lively action, and by his extraordinary ſwift rotation or whirling motion about the Center; as alſo by the ſhavings of his æthereal ſubtil Matter which fill'd up all vacuities and pores, and his æthereal globules; I would ask whether this kind of motion did ſtill continue; if ſo, then not onely the rugged and uneven parts, but alſo the æthereal globules would become leſs by this continual rotation, and would make this world a very weak, dizzie, and tottering world; and if there be any ſuch ſhaving and leſſening, then according to his principles there muſt alſo be ſome reaction, or a reacting and reſiſting motion, and then there would be two oppoſite motions which would hinder each other. But I ſuppoſe he conceived, that Nature, or the God of Nature, did produce the world after a Mechanical way, and according as we ſee Turners, and ſuch kind of Artificers work; which if ſo, then the Art of Turning is the prime and fundamental of all other Mechanical Arts, and ought to have place before the reſt, and a Turner ought to be the prime and chief of all Mechanicks, and highly eſteemed; but alas! that ſort of

people is leaſt regarded; and though by their turning Art they make many duſty ſhavings, yet they get but little profit by them; for all they get is by their ſeveral wooden figures they make, as Spoons, Ladles, Cups, Bowls, Trenchers, and the like, and not by their ſhavings. Wherefore as all other Mechanicks do not derive their Arts from Turners, ſo neither is it probable, that this world and all natural Creatures are produced by a whirling Motion, or a ſpherical rotation, as if ſome ſpirits were playing at Bowls or Foot-ball; for as I have often mentioned, Nature has infinite ways of Motions, whereof none is prime or principal, but ſelf-motion, which is the producer of all the varieties Nature has within her ſelf. Next, as for his Opinion of transferring and imparting Motion to other bodies, and that that body which imparts Motion to another body, loſes as much as it gives, I have anſwer'd in my Philoſophical Letters; to wit, that it is moſt improbable, by reaſon Motion being material and inſeparable from Matter, cannot be imparted without Matter; and if not, then the body that receives Motion would increaſe in bulk, and the other that loſes Motion would decreaſe, by reaſon of the addition and diminution of the parts of Matter, which muſt of neceſsity increaſe and leſſen the bulk of the body, the contrary whereof is ſufficiently known.

18. *Of the blackneſs of a Charcoal, and of Light.*

I Cannot in reaſon give my conſent to thoſe Dioptrical Writers, who conceive that the blackneſs of a Charcoal proceeds from the Porouſneſs of its parts, and the abſence of light, *viz.* that light, not being reflected in the Pores of a Charcoal, doth make it obſcure, and conſequently appear black; for the opinion which holds that all Colours are cauſed by the various reflexion of Light, has but a weak and uncertain Ground, by reaſon the refraction or reflection of light is ſo inconſtant, as it varies and alters continually; and there being ſo many reflexions and poſitions of Light, if they were the true cauſe of Colours, no Colour would appear conſtantly the ſame, but change variouſly, according to the various reflexion of Light; whereas, on the contrary, we ſee that natural and inherent Colours continue always the ſame, let the poſition and reflection of Light be as it will; beſides, there being different coloured Creatures, if all had the ſame poſition and reflexion of light, they would not appear of divers, but all of one colour, the contrary whereof is proved by experience. I will not ſay, but the refraction and various poſition of light may vary and alter a natural and inherent colour exteriouſly ſo, as to cauſe, for example, a natural blew to appear green, or a natural green to appear red, *&c.* but thoſe figures which light

light makes, being but ſuperficially and looſely ſpread upon other natural and ſubſtantial figures, are ſo uncertain, inconſtant and momentary, that they do change according as the reflexion and poſition of light alters; and therefore they cannot cauſe or produce any natural or inherent colours, for theſe are not ſuperficial, but fixt, and remain conſtantly the ſame. And as for blackneſs, that it ſhould be cauſed by the abſence of light, I think it to be no more probable, then that light is the cauſe of our ſight; for if the blackneſs of a Charcoal did proceed from the abſence of light in its pores, then a black Horſe would have more or deeper pores then a white one, or a ſorrel, or any other coloured Horſe; alſo a black Moor would have larger Pores then a man of a white complexion; and black Sattin, or any black Stuff, would have deeper pores then white Stuff: But if a fair white Lady ſhould bruiſe her arm, ſo as it did appear black, can any one believe that light would be more abſent from that bruiſed part then from any other part of her arm that is white, or that light ſhould reflect otherwiſe upon that bruiſed part, then on any other? Alſo can any body believe, that the reflexion of light on a decayed Ladies face, ſhould be the cauſe that her complexion is altered from what it was when ſhe was young, and appeared beautiful and fair? Certainly Light is no more the cauſe of her Complexion then of her Wrinkles, or elſe ſhe would never complain of Age, but of Light. But to

prove

prove further, that the entering of light into the pores of exterior bodies, can neither make perception nor colours; if this were ſo, then the entering of light into the pores of the Eye, would make it perceive all things of as many colours as a Rain-bow hath: beſides, if ſeveral Eyes ſhould have ſeveral ſhaped Pores, none would agree in the perception of the colour of an exterior object, or elſe it would ſo dazle the ſight, as no object would be truly perceived in its natural colour; for it would breed a confuſion between thoſe reflexions of light that are made in the pores of the eye, and thoſe that are made in the pores of the object, as being not probable they would agree, ſince all pores are not juſt alike, or of the ſame bigneſs; ſo as what with Air, Light, Particles, and Pores jumbled together, and thruſt or crowded into ſo ſmall a compaſs, it would make ſuch a confuſion and Chaos of colours, as I may call it, that no ſight would be able to diſcern them; wherefore it is no more probable that the perception of ſight is cauſed by the entering of light into the pores of the Eye, then that the perception of ſmoak is cauſed by its entrance into the Eye: And I wonder rational men do believe, or at leaſt conceive Natures actions to be ſo confuſed and diſordered, when as yet ſenſe and reaſon may perceive that Nature works both eaſily and orderly, and therefore I rather believe, that as all other Creatures, ſo alſo light is patterned out by the corporeal figurative and percep-

tive motions of the optick ſenſe, and not that its perception is made by its entrance into the eye, or by preſſure and reaction, or by confuſed mixtures, by reaſon the way of Patterning is an eaſie alteration of parts, when as all others are forced and conſtrained, nay, unſetled, inconſtant and uncertain; for how ſhould the fluid particles of air and light be able to produce a conſtant and ſetled effect, being ſo changeable themſelves, what inſtances ſoever of Geometrical figures be drawn hither to evince it? if Man knew Natures Geometry, he might perhaps do ſomething, but his artificial figures will never find out the architecture of Nature, which is beyond his perception or capacity. But ſome may object, That neither colour, nor any other object can be ſeen or perceived without light, and therefore light muſt needs be the cauſe of colours, as well as of our optick perception. To which I anſwer, Although we cannot regularly ſee any other bodies without light, by reaſon darkneſs doth involve them, yet we perceive darkneſs and night without the help of light. They will ſay, We perceive darkneſs onely by the abſence of light. I anſwer, If all the Perception of the optick ſenſe did come from light, then the Perception of night or darkneſs would be no perception at all, which is a Paradox, and contrary to common experience, nay, to ſenſe and reaſon, for black requires as much Perception as white, and ſo doth darkneſs and night. Neither could we ſay, it is dark, or it is night, if we did not perceive it to be

ſo,

ſo, or had no perception at all of it: The truth is, we perceive as much darkneſs as we do light, and as much black as we do white; for although darkneſs doth not preſent to our view other objects, ſo as light doth, but conceals them, yet this doth not infer that darkneſs is not perceived; for darkneſs muſt needs do ſo, by reaſon it is oppoſite to light, and its corporeal figurative motions are quite contrary to the motions of light, and therefore it muſt alſo of neceſsity have contrary effects; wherefore the error of thoſe that will not allow darkneſs to be a corporeal figurative motion, as well as light, but onely a privation or abſence of light, cannot make it nothing; but it is on the contrary well known, that darkneſs has a being as well as light has, and that it is ſomething, and not nothing, by reaſon we do perceive it; but he that perceives, muſt needs perceive ſomething, for no perception can be of nothing: beſides, I have declared elſewhere, that we do ſee in dreams, and that mad men ſee objects in the dark, without the help of light: which proves, it is not the preſence or entering of light into the eye, that cauſes our ſeeing, nor the abſence of light, which takes away our optick Perception, but light onely doth preſent exterior objects to our view, ſo as we may the better perceive them. Neither is a colour loſt or leſſened in the dark, but it is onely concealed from the ordinary perception of humane ſight; for truly, if colours ſhould not be colours in the dark, then it might as rationally be ſaid, that a man's

fleſh

fleſh and blood is not fleſh and blood in the dark, when it is not ſeen by a humane eye: I will not ſay, that the ſmalneſs and fineneſs of parts may not make colours appear more glorious; for colours are like artificial Paintings, the gentler and finer their draughts and lines are, the ſmoother and gloſsier appear their works; but ſmalneſs and fineneſs is not the true cauſe of colours, that is, it doth not make colours to be colours, although it makes colours fine. And thus black is not black through the abſence of Light, no more then white can be white by the preſence of light; but blackneſs is one ſort of colour, whiteneſs another, redneſs another, and ſo of the reſt: Whereof ſome are ſuperficial and changeable, to wit, ſuch as are made by the reflection of light, others fixt and inherent, *viz.* ſuch as are in ſeveral ſorts of Minerals, Vegetables and Animals; and others again are produced by Art, as by Dying and Painting; which Artiſts know beſt how to order by their ſeveral mixtures.

19. *Of the Pores of a Charcoal, and of Emptineſs.*

ALthough I cannot believe, that the abſence of Light in the Pores of a Charcoal is the cauſe of its blackneſs; yet I do not queſtion the truth of its Pores: for that all, or moſt Creatures have Pores, I have declared before; which Pores are nothing elſe but

but paſſages to receive and diſcharge ſome parts of matter; and therefore the opinion of thoſe that believe an entering of ſome Particles of exterior bodies through the Pores of animal Creatures, and an intermixing with their interior parts; as that, for example, in the bathing in Mineral Waters, the liquid and warm vehicles of the Mineral Particles, do by degrees inſinuate themſelves into the pores of the skin, and intermix with the inner parts of the body, is very rational; for this is a convenient way of conveighing exteterior parts into the body, and may be effectual either to good or bad; and although the pores be very ſmall, yet they are numerous, ſo that the number of the pores ſupplies the want of their largeneſs. But yet although Pores are paſſages for other bodies to iſſue or enter, nevertheleſs they are not empty, there being no ſuch thing as an emptineſs in Nature; for ſurely God, the fulneſs and Perfection of all things, would not ſuffer any *Vacuum* in Nature, which is a Pure Nothing; *Vacuum* implies a want and imperfection of ſomething, but all that God made by his All-powerful Command, was good and perfect; Wherefore, although Charcoals and other bodies have Pores, yet they are fill'd with ſome ſubtile Matter not ſubject to our ſenſitive perception, and are not empty, but onely call'd ſo, by reaſon they are not fill'd up with ſome ſolid and groſs ſubſtance perceptible by our ſenſes. But ſome may ſay, if there be no emptineſs in Nature, but all fulneſs of body, or

bodily parts, then the ſpiritual or divine ſoul in Man, which inhabits his body, would not have room to reſide in it. I anſwer, The Spiritual or Divine Soul in Man is not Natural, but Supernatural, and has alſo a Supernatural way of reſiding in man's body; for Place belongs onely to bodies, and a Spirit being bodileſs, has no need of a bodily place. But then they will ſay, That I make Spirit and *Vacuum* all one thing, by reaſon I deſcribe a Spirit to be a Natural Nothing, and the ſame I ſay of *Vacuum*; and hence it will follow, that particular Spirits are particular Emptineſſes, and an Infinite Spirit an Infinite *Vacuum*. My anſwer is, That although a Spirit is a Natural nothing, yet it is a Supernatural ſomething; but a *Vacuum* is a Pure nothing, both Naturally and Supernaturally; and God forbid I ſhould be ſo irreligious, as to compare Spirits, and conſequently God, who is an Infinite Spirit, to a *Vacuum*; for God is All-fulfilling, and an Infinite Fulneſs and Perfection, though not a Corporeal or Material, yet a Supernatural, Spiritual, and Incomprehenſible fulneſs; when as *Vacuum*, although it is a corporeal word, yet in effect or reality is nothing, and expreſſes a want or imperfection, which cannot be ſaid of any ſupernatural Creature, much leſs of God.

20. *Of Colours.*

ALthough the ſenſitive perception doth pattern out the exterior figure of Colours, as eaſily as of any other object, yet all perceptions of Colours are not made by Patterning; for as there are many perceptions which take no patterns from outward objects, ſo there are alſo perceptions of Colours which never were preſented to our ſenſitive organs: Neither is any perception made by exterior objects, but by interior corporeal figurative motions; for the object doth not print or act any way upon the eye, but it is the ſenſitive motions in the eye which pattern out the figure of the object: and it is to be obſerved, that as the parts of ſome bodies do conſiſt of ſeveral different figures, which the learned call Heterogeneous, one figure being included within another; and ſome again, their parts are but of one kind of figure, which they call Homogeneous bodies, as for example, Water: ſo it may be with Colours; for ſome, their parts may be quite thorow of one colour, and others again, may be of ſeveral colours; and indeed, moſt Creatures, as they have different parts, ſo thoſe different parts have alſo different colours; and as thoſe parts do alter, ſo do their colours: For example, a Man that is in good health, looks of a ſanguine complexion, but being troubled with the Yellow or black Jaundies, his complexion is of the colour of the humor,

mor, either black, or yellow; yet it doth not proceed always from the over-flowing of the humor towards the exterior parts; for many times, when the humor is obſtructed, it will cauſe the ſame effect; but then the corporeal motions in the extream parts alter by way of Imitation or Metamorphoſing, as from a ſanguine colour into the colour of the predominant humor: Wherefore it is no more wonder to ſee colours change in the tempering of Steel (as ſome are pleaſed to alledg this experiment) then to ſee Steel change and rechange its temper from being hard to ſoft, from tough to brittle, *&c.* which changes prove, that colours are material as well as ſteel, ſo that the alteration of the corporeal parts, is the alteration of the corporeal figures of colours. They alſo prove, that Light is not eſſential to colours; for although ſome colours are made by ſeveral Reflexions, Refractions and Poſitions of Light, yet Light is not the true and natural cauſe of all colours; but thoſe colours that are made by light, are moſt inconſtant, momentany and alterable, by reaſon light and its effects are very changeable: Neither are colours made by a bare motion, for there is no ſuch thing as a bare or immaterial Motion in Nature; but both Light and Colours are made by the corporeal figurative motions of Nature; and according to the various changes of thoſe Motions, there are alſo various and different Lights and Colours; and the perception of light and Colours is made and diſſolved by the ſenſitive figurative

figurative motions in the optick *ſenſorium*, without the exchange of exterior objects; but as the ſlackeſt, looſeſt or rareſt parts are of leaſt ſolid or compoſed corporeal figures, ſo are they moſt apt to change and rechange upon the leaſt diſorder, as may well be obſerved in colours raiſed by Paſsions, as fear, anger, or the like, which will change not onely the complexion and countenance, but the very features will have ſome alteration for a ſhort time, and many times the whole body will be ſo altered, as not to be rightly compoſed again for a good while; nay, often there follows a total diſſolution of the whole figure, which we call death. And at all this we need not wonder, if we do but conſider that Nature is full of ſenſe and reaſon, that is, of ſenſitive and rational perception, which is the cauſe that oftentimes the diſturbance of one part cauſes all other parts of a compoſed figure to take an alarum; for, as we may obſerve, it is ſo in all other compoſed bodies, even in thoſe compoſed by Art; as for example, in the Politick body of a Common-wealth, one Traytor is apt to cauſe all the Kingdom to take armes; and although every member knows not particularly of the Traytor, and of the circumſtances of his crime, yet every member, if regular, knows its particular duty, which cauſes a general agreement to aſsiſt each other; and as it is with a Common-wealth, ſo it is alſo with an animal body; for if there be factions amongſt the parts of an animal body, then ſtraight

there ariſes a Civil War. Wherefore to return to Colours; a ſudden change of Colours may cauſe no wonder, by reaſon there is oftentimes in Nature a ſudden change of parts, that is, an alteration of figures in the ſame parts: Neither is it more to be admired, that one colour ſhould be within another, then one figurative part is within another; for colours are figurative parts; and as there are ſeveral Creatures, ſo there are alſo ſeveral Colours; for the Colour of a Creature is as well corporeal as the Creature it ſelf; and (to expreſs my ſelf as clearly as I can) Colour is as much a body as Place and Magnitude, which are but one thing with body: wherefore when the body, or any corporeal part varies, whether ſolid or rare; Place, Magnitude, Colour, and the like, muſt of neceſsity change or vary alſo; which change is no annihilation or periſhing, for as no particle of Matter can be loſt in Nature, nor no particular motion, ſo neither can Colour; and therefore the opinion of thoſe, who ſay, That when Flax or Silk is divided into very ſmall threads, or fine parts, thoſe parts loſe their colours, and being twiſted, regain their colours, ſeems not conformable to Truth; for the diviſion of their parts doth not deſtroy their colours, nor the compoſing of thoſe parts regain them; but they being divided into ſuch ſmall and fine parts, it makes their colours, which are the fineſt of their exterior parts, not to be ſubject to our optick perception; for what is very ſmall or rare, is not ſubject

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to the humane optick ſenſe; wherefore there are theſe following conditions required to the optick perception of an exterior object: Firſt, The object muſt not be too ſubtil, rare, or little, but of a certain degree of magnitude; Next, It muſt not be too far diſtant, or without the reach of our ſight; then the medium muſt not be obſtructed, ſo as to hinder our perception; And laſtly, our optick *ſenſorium* muſt be perfect, and the ſenſitive motions regular; of which conditions, if any be wanting, there is either no perception at all, or it is an imperfect perception; for the perception of ſeeing an exterior object, is nothing elſe but a patterning out of the figure of that ſame object by the ſenſitive figurative and perceptive motions; but there are infinite parts that are beyond our humane perception, and it would be but a folly for us to deny that which we cannot ſee or perceive; and if the perceptive motions be not regular in our optick ſenſe, we may ſee different colours in one object; nay, the corporeal figurative motions in the eye may make ſeveral figurative colours, even without the patterns of outward objects; and as there are ſeveral colours, ſo there are alſo ſeveral corporeal figurative motions that make ſeveral colours in ſeveral parts; and the more ſolid the parts are, the more fixt are their inherent natural colours: But ſuperficial colours are more various, though not ſo various as they would be, if made by duſty Atomes, flying about as Flies in Sun-ſhine; for if this opinion were true, all colours

lours, and other Creatures would be compoſed or made by chance, rather then by reaſon, and chance being ſo ignorantly inconſtant, not any two parts would be of the like colour, nor any kind or ſpecies would be preſerved; but Wiſe Nature, although ſhe be full of variety, yet ſhe is alſo full of reaſon, which is knowledg; for there is no part of Nature that has not ſenſe and reaſon, which is life and knowledg; and if all the infinite parts have life and knowledg, Infinite Nature cannot be a fool or inſenſible: But miſtake me not, for I do not mean, that her parts in particular are infinitely knowing, but I ſay Infinite Nature hath an Infinite knowledg; and by reaſon Nature is material, ſhe is divideable as well as compoſeable, which is the cauſe that there is an obſcurity in her Parts, in particular, but not in general, that is, in Nature her ſelf; nay, if there were not an obſcurity in the Particulars, men would not endeavour to prove inherent and natural figures by ſuperficial *Phænomena*'s. But as for Colour, ſome do mention the example of a blind man, who could diſcover colours by touch; and truly I cannot account it a wonder, becauſe colours are corporeal figurative motions, and touch being a general ſence, may well perceive by experience (which is gained by practice) ſome Notions of other ſenſitive perceptions; as for example, a blind man may know by relation the ſeveral touches of Water, Milk, Broth, Jelly, Vinegar, Vitriol, *&c.* as well as what is hot, cold, rare, denſe, hard, ſoft,

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or the like; and if he have but his touch, hearing, ſpeaking and ſmelling, perfectly, he may expreſs the ſeveral knowledges of his ſeveral ſenſes by one particular ſenſe, or he may expreſs one ſenſes knowledg by another; but if the ſenſes be imperfect, he cannot have a true knowledg of any object. The ſame may be ſaid of Colours; for ſeveral Colours being made by ſeveral corporeal figurative motions, may well be perceived by a general ſenſe, which is Touch: I will not ſay, that touch is the principle of all ſenſitive knowledg, for then I ſhould be of the opinion of thoſe Experimental Philoſophers, which will have one principal motion or figure to be the cauſe of all Natural things; but I onely ſay, animal touch may have ſome Notion of the other animal ſenſes by the help of rational perception: all which proves, that every part is ſenſible, and every ſenſe knowing, not onely in particular, but that one ſenſe may have ſome general notion or knowledg of the reſt; for there are particular and general perceptions in ſenſitive and rational matter, which is the cauſe both of the variety and order of Nature's Works; and therefore it is not neceſſary, that a black figure muſt be rough, and a white figure ſmooth: Neither are white and black the Ground-figures of Colours, as ſome do conceive, or as others do imagine, blew and yellow; for no particular figure can be a principle, but they are all but effects; and I think it is as great an error to believe Effects

for Principles, as to judg of the Interior Natures and Motions of Creatures by their Exterior *Phænomena* or appearances, which I obſerve in moſt of our modern Authors, whereof ſome are for Incorporeal Motions, others for Prime and Principal Figures, others for Firſt Matter, others for the figures of duſty and inſenſible Atomes, that move by chance: when as neither Atomes, Corpuſcles or Particles, nor Pores, Light, or the like, can be the cauſe of fixt and natural colours; for if it were ſo, then there would be no ſtayed or ſolid colour, inſomuch, as a Horſe, or any other Creature, would be of more various colours then a Rain-bow; but that ſeveral colours are of ſeveral figures, was always, and is ſtill my opinion, and that the change of colours proceeds from the alteration of their figures, as I have more at large declared in my other Philoſophical Works: Indeed Art can no more force certain Atomes or Particles to meet and join to the making of ſuch a figure as Art would have, then it can make by a bare command Inſenſible Atomes to join into a Uniform World. I do not ſay this, as if there could not be Artificial Colours, or any Artificial Effects in Nature; but my meaning onely is, that although Art can put ſeveral parts together, or divide and disjoyn them, yet it cannot make thoſe parts move or work ſo as to alter their proper figures or interior natures, or to be the cauſe of changing and altering their own or other parts, any otherwiſe then they are by their Natures.

Natures. Neither do I ſay, that no Colours are made by Light, but I ſay onely, that fixt colours are not made by Light; and as for the opinion, that white bodies reflect the Light outward, and black bodies inward, as ſome Authors do imagine; I anſwer, 'Tis probable, ſome bodies may do ſo, but all white and black Colours are not made by ſuch reflexions; the truth is, ſome conceive all Colours to be made by one ſort of Motion, like as ſome do believe that all ſenſation is made by preſſure and reaction, and all heat by parts tending outward, and all cold by parts tending inward; when as there are not onely ſeveral kinds of heat and cold, as Animal, Vegetable, Mineral and Elemental heat and cold, but ſeveral ſorts in each kind, and different particulars in each ſort; for there is a moiſt heat, a dry heat, a burning, a diſſolving, a compoſing, a dilating, a contracting heat, and many more: The like for colds; all which ſeveral kinds, ſorts and particulars, are made by the ſeveral changes of the corporeal figurative Motions of Nature, and not by Preſſure and Reaction, or by tending inward and outward. And as there is ſo great a variety and difference amongſt natural Creatures, both in their Perceptions and interior natures, ſo there are alſo varieties of their colours, the natural colours of men being different from the natural colours of Beaſts, Birds, Fiſh, Worms, Flies, *&c.* Concerning their interior Natures, I'le alledg but few examples; although a Peacock, Parrot, Pye,

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or the like, are gay Birds, yet there is difference in their Gayety: Again; although all men have fleſh and blood, and are all of one particular kind, yet their interior natures and diſpoſitions are ſo different, as ſeldom any two men are of the ſame complexion; and as there is difference in their complexions, ſo in the exterior ſhapes and features of their exterior parts, in ſo much as it is a wonder to ſee two men juſt alike; nay, as there is difference in the corporeal parts of their bodies, ſo in the corporeal parts of their minds, according to the old Proverb, So many Men, ſo many Minds: For there are different Underſtandings, Fancies, Conceptions, Imaginations, Judgments, Wits, Memories, Affections, Paſsions, and the like. Again: as in ſome Creatures there is difference both in their exterior features and interior natures, ſo in others there is found a reſemblance onely in their exterior, and a difference in their interior parts; and in others again, a reſemblance in their interior, and a difference in their exterior parts; as for example, black Ebony, and black Marble, are both of different natures, one being Wood, and the other Stone, and yet they reſemble each other in their exterior colour and parts; alſo, white, black, and gray Marble, are all of one interior Nature, and yet do differ in their exterior colour and parts: The ſame may be ſaid of Chalk and Milk, which are both white, and yet of ſeveral natures; as alſo of a Turquois, and the Skie, which both appear of one colour,

lour, and yet their natures are different: beſides, there are ſo many ſtones of different colours, nay, ſtones of one ſort, as for example, Diamonds, which appear of divers colours, and yet are all of the ſame Nature; alſo Man's fleſh, and the fleſh of ſome other animals, doth ſo much reſemble, as it can hardly be diſtinguiſhed, and yet there is great difference betwixt Man and Beaſts: Nay, not onely particular Creatures, but parts of one and the ſame Creature are different; as for example, every part of mans body has a ſeveral touch, and every bit of meat we eat has a ſeveral taſte, witneſs the ſeveral parts, as legs, wings, breaſt, head, *&c.* of ſome Fowl; as alſo the ſeveral parts of Fiſh, and other Creatures. All which proves the Infinite variety in Nature, and that Nature is a perpetually ſelf-moving body, dividing, compoſing, changing, forming and transforming her parts by ſelf-corporeal figurative motions; and as ſhe has infinite corporeal figurative motions, which are her parts, ſo ſhe has an infinite wiſdom to order and govern her infinite parts; for ſhe has Infinite ſenſe and reaſon, which is the cauſe that no part of hers is ignorant, but has ſome knowledg or other, and this Infinite variety of knowledg makes a general Infinite wiſdom in Nature. And thus I have declared how Colours are made by the figurative corporeal motions, and that they are as various and different as all other Creatures, and when they appear either more or leſs, it is by the variation of their parts.

But as for the experiment of Snow, which ſome do alledg, that in a darkned room, it is not perceived to have any other light then what it receives, doth not prove that the whiteneſs of Snow is not an inherent and natural colour, becauſe it doth not reflect light, or becauſe our eye doth not ſee it, no more then we can juſtly ſay, that blood is not blood, or fleſh is not fleſh in the dark, if our eye do not perceive it, or that the interior parts of Nature are colourleſs, becauſe the exterior light makes no reflexion upon them.. Truly, in my judgment, thoſe opinions, that no parts have colour, but thoſe which the light reflects on, are neither probable to ſenſe nor reaſon; for how can we conceive any corporeal part without a colour? In my opinion, it is as impoſsible to imagine a body without colour, as it is impoſsible for the mind to conceive a natural immaterial ſubſtance; and if ſo pure a body as the mind cannot be colourleſs, much leſs are groſſer bodies. But put the caſe all bodies that are not ſubject to exterior light were black as night, yet they would be of a colour, for black is as much a colour as green, or blew, or yellow, or the like; but if all the interior parts of Nature be black, then, in my opinion, Nature is a very ſad and melancholy Lady; and thoſe which are of ſuch an opinion, ſurely their minds are more dark then the interior parts of Nature; I will not hope that clouds of duſty Atomes have obſcured them. But if not any Creature can have imagination without figure and colour, much leſs

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can the optick ſenſitive parts; for the exterior ſenſitive parts are more groſs then the rational, and therefore they cannot be without colour, no more then without figure: and although the exterior parts of Animals are ſubject to our touch, yet the countenances of thoſe ſeveral exterior parts are no more perceptible by our touch, then ſeveral colours are: By Coutenances, I mean the ſeveral exterior poſtures, motions, or appearances of each part; for as there is difference betwixt a face, and a countenance; (for a face remains conſtantly the ſame, when as the countenance of a face may and doth change every moment; as for example, there are ſmiling, frowning, joyful, ſad, angry countenances, *&c.*) ſo there is alſo a difference between the exterior figure or ſhape of a Creature, and the ſeveral and various motions, appearances or poſtures of the exterior parts of that Creatures exterior figure, whereof the former may be compared to a Face, and the later to a Countenance. But leaving this nice diſtinction; If any one ſhould ask me, Whether a Barbary-horſe, or a Gennet, or a Turkiſh, or an Engliſh-horſe, can be known and diſtinguiſhed in the dark? I anſwer: They may be diſtinguiſhed as much as the blind man (whereof mention hath been made before) may diſcern colours, nay, more; for the figure of a groſs exterior ſhape of a body may ſooner be perceived, then the more fine and pure countenance of Colours. To ſhut up this my diſcourſe of Colours, I will briefly repeat what I have ſaid

ſaid before, *viz.* that there are natural and inherent colours which are fixt and conſtant, and ſuperficial colours, which are changeable and inconſtant, as alſo Artificial colours made by Painters and Dyers, and that it is impoſsible that any conſtant colour ſhould be made by inconſtant Atomes and various lights. 'Tis true, there are ſtreams of duſt or duſty Atomes, which ſeem to move variouſly, upon which the Sun or light makes ſeveral reflections and refractions; but yet I do not ſee, nor can I believe, that thoſe duſty particles and light are the cauſe of fixt and inherent colours; and therefore if Experimental Philoſophers have no firmer grounds and principles then their Colours have, and if their opinions be as changeable as inconſtant Atomes, and variable Lights, then their experiments will be of no great benefit and uſe to the world. Neither will Artificial Characters and Geometrical Figures be able to make their opinions and experiments more probable; for they appear to me like Dr. *Dee's* numbers, who was directed by I know not what ſpirits, which *Kelley* ſaw in his holy ſtone, which neither of them did underſtand; much leſs will Dioptrical glaſſes give any true Information of them, but they rather delude the ſight; for Art is not onely intricate and obſcure, but a falſe informer, and rather blinds then informs any particular Creature of the Truth of Nature: but my reaſon perceives that Nature loves ſometimes to act or work blind-fold in the actions of Art;

Art; for although they be natural, yet they are but Natures blind, at leaſt her winking or jugling actions, cauſing ſome parts or Creatures to deceive others, or elſe they are her politick actions by which ſhe deceives her Creatures expectations, and by that means keeps them from knowing and underſtanding her ſubtile and wiſe Government.

21. *Whether an Idea have a Colour, and of the Idea of a Spirit.*

I Have declared in my former diſcourſe, that there is no Colour without body, nor a body without colour, for we cannot think of a body without we think of colour too. To which ſome may object, That if colour be as proper to a body as matter, and if the mind be corporeal, then the mind is alſo coloured. I anſwer, The Mind, in my opinion, has as much colour as other parts of Nature. But then perhaps they will ask me, what colour the Mind is of? My anſwer is, That the Mind, which is the rational part of Nature, is no more ſubject to one colour, then the Infinite parts of Nature are ſubject to one corporeal figurative motion; for you can no more confine the corporeal mind to a particular complexion, then you can confine Infinite matter to one particular colour, or all colours to one particular figure. Again, they may ask, Whether an Idea have a

colour? and if ſo, whether the Idea of God be coloured? To which I anſwer, If the Ideas be of corporeal finite figures, they have colours according to the nature, or property, or figure of the original; but as for the Idea of God, it is impoſsible to have a corporeal Idea of an infinite incorporeal Being; for though the finite parts of Nature may have a perception or knowledg of the exiſtence of God, yet they cannot poſsibly pattern or figure him, he being a Supernatural, Immaterial, and Infinite Being: But put the caſe (although it is very improbable, nay, againſt ſenſe and reaſon) there were natural immaterial Idea's, if thoſe Idea's were finite, and not infinite, yet they could not poſsibly expreſs an infinite, which is without limitation, by a finite figure which hath a Circumference. Some may ſay, An Immaterial Idea hath no Circumference. But then I anſwer, It is not a finite Idea, and it is impoſsible for an Idea to be Infinite: for I take an Idea to be the picture of ſome object, and there can be no picture without a perfect form; neither can I conceive how an immaterial can have a form, not having a body; wherefore it is more impoſsible for Nature to make a picture of the Infinite God, then for Man, which is but a part of Nature, to make a picture of infinite Nature; for Nature being material, has alſo a figure and matter, they being all one, ſo that none can be without the other, no more then Nature can be divided from her ſelf. Thus it is impoſsible for Man to make a figure,

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or picture of that which is not a part of Nature; for pictures are as much parts of Nature, as any other parts, nay, were they monſtrous, as we call them; for Nature being material, is alſo figurative, and being a ſelf-moving matter or ſubſtance, is divideable, and compoſeable; and as ſhe hath infinite corporeal figurative motions, and infinite parts, ſo ſhe hath infinite figures, of which ſome are pictures, others originals; and if any one particular Creature could picture out thoſe infinite figures, he would picture out Nature; but Nature being Infinite, cannot be pictured or patterned by any finite and particular Creature, although ſhe is material; nevertherleſs ſhe may be patterned in parts: And as for God, He being individeable and immaterial, can neither be patterned in part, nor in whole, by any part of Nature which is material, nay, not by infinite Nature her ſelf: Wherefore the notions of God can be no otherwiſe but of his exiſtence, to wit, that we know there is ſomething above Nature, who is the Author and God of Nature; for though Nature hath an infinite natural knowledg of the Infinite God, yet being divideable as well as compoſeable, her parts cannot have ſuch an infinite knowledg or perception; and being compoſeable as much as divideable, no part can be ſo ignorant of God, as not to know there is a God. Thus Nature hath both an infinite and finite perceptions; infinite in the whole, as I may ſay for better expreſsions ſake, and finite in parts. But miſtake me not, I do

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not mean, that either the infinite perception of Nature, or the finite perceptions of natural parts and Creatures, are any otherwiſe of that ſupernatural and divine being then natural; but yet they are the moſt pureſt parts, being of the rational part of Nature, moving in a moſt elevating and ſubtile manner, as making no exact figure or form, becauſe God hath neither form nor figure; but that ſubtile matter or corporeal perceptive motion patterns out onely an over-ruling power, which power all the parts of Nature are ſenſible of, and yet know not what it is; like as the perception of Sight ſeeeth the ebbing and flowing of the Sea, or the motion of the Sun, yet knows not their cauſe; and the perception of Hearing hears Thunder, yet knows not how it is made; and if there be ſuch ignorance of the corporeal parts of Nature, what of God? But to conclude, my opinion is, That as the ſenſitive perception knows ſome of the other parts of Nature by their effects, ſo the rational perceives ſome effects of the Omnipotent power of God; which effects are perceptible by finite Creatures, but not his Infinite Nature, nor Eſſence, nor the cauſe of his Infiniteneſs and Omnipotency. Thus although Gods Power may be perceived by Natures parts, yet what God is, cannot be known by any part: and Nature being compoſeable, there is a general acknowledgment of God in all her parts; but being alſo divideable, it is the cauſe there are particular Religions, and opinions of God, and of his divine Worſhip and Adoration.

22. *Of*

22. *Of Wood Petrified.*

I Cannot admire, as ſome do, that Wood doth turn into ſtone, by reaſon I obſerve, that Slime, Clay, Dirt, nay Water, may and doth often the ſame, which is further off from the nature of Stone then Wood is, as being leſs denſe, and its interior figurative motions being dilating: but yet this doth not prove that all other Creatures may as eaſily be metamorphoſed into ſtone as they; for the parts of water are compoſed but of one ſort of figure, and are all of the ſame nature; and ſo is wood, clay, ſhells, *&c.* whoſe parts are but of one figure, at leaſt not of ſo many different figures as the parts of Animals, or other Creatures; for as Animals have different parts, ſo theſe parts are of different figures, not onely exteriouſly, but interiouſly; as for example, in ſome or moſt Animals there are Bones, Griſtles, Nerves, Sinews, Muſcles, Fleſh, Blood, Brains, Marrow, Choler, Phlegme, and the like; beſides, there are ſeveral ſorts of fleſh, witneſs their interior and exterior parts, as the Heart, Lungs, Liver, Spleen, Guts, and the like; as alſo the Head, Breaſt, Armes, Body, Legs, and the like: all which would puzzle and withſtand the power of *Ovid's* Metamophoſing of Gods and Goddeſſes. Wherefore it is but a weak argument to conclude, becauſe ſome Creatures or parts can change out of one figure into another

without a diſſolution of their compoſed parts, therefore all Creatures can do the like; for if all Creatures could or ſhould be metamorphoſed into one ſort of figure, then this whole World would perhaps come to be one Stone, which would be a hard World: But this Opinion, I ſuppoſe, proceeds from Chymiſtry; for ſince the laſt Art of Chimyſtry (as I have heard) is the Production of glaſs, it makes perhaps Chymiſts believe, that at the laſt day, when this Word ſhall be diſſolved with Fire, the Fire will calcine or turn it into Glaſs: A brittle World indeed! but whether it will be tranſparent, or no, I know not, for it will be very thick.

23. *Of the Nature of Water.*

THe Aſcending of VVater in Pipes, Pumps, and the like Engines, is commonly alledged as an argument to prove there is no *Vacuum*: But, in my opinion, VVater, or the like things that are moiſt, liquid and wet, their interior corporeal and natural motion is flowing, as being of a dilating figure; and when other parts or Creatures ſuppreſs thoſe liquors, ſo that they cannot riſe, they will dilate; but when ſolid and heavy bodies are put into them as Stones, Metals, *&c.* which do ſink, then they will riſe above them, as being their nature to over-flow any other body, if they can have the better of it, or get paſſage: For concerning the floating

floating of ſome bodies, the reaſon is not ſo much their levity or porouſneſs, but both their exterior ſhape, and the waters reſtleſsneſs or activity, the ſeveral parts of water endeavouring to drive thoſe floating bodies from them; like as when ſeveral men playing at Ball, or Shittle-cock, or the like, endeavour to beat thoſe things from and to each other; or like as one ſhould blow up a feather into the Air, which makes it not onely keep up in the air, but to wave about: The like doth water with floating bodies; and the lighter the floating parts are, the more power have the liquid parts to force and thruſt them about. And this is alſo the reaſon why two floating bodies of one Nature endeavour to meet and joyn, becauſe by joyning they receive more ſtrength to reſiſt the force of the watry parts: The ſame may be ſaid when as floating bodies ſtick or join to the ſides of Veſſels; but many times the watry parts will not ſuffer them to be at reſt or quiet, but drive them from their ſtrong holds or defences. Concerning the ſuppreſsion of water, and of ſome floating bodies in water by air or light, as that air and light ſhould ſuppreſs water, and bodies floating upon it (as ſome do conceive) I ſee no reaſon to believe it; but the contrary rather appears by the levity of air, which is ſo much lighter, and therefore of leſs force then either the floating bodies, or the water on which they float. Some again are of opinion, That Water is a more denſe body then Ice, and prove it by the Refractions of light, becauſe

becauſe VVater doth more refract the rays of light then Ice doth: but whatſoever their experiments be, yet my reaſon can hardly believe it; for although Ice may be more tranſparent then water, yet it may be more denſe then water: for Glaſs is more tranſparent then water, and yet more denſe then water; and ſome bodies will not be traſparent if they be thick, that is, if they have a great number of parts upon parts, when as they will be tranſparent if they be thin, that is, if they have few thin parts upon each other; ſo that tranſparent bodies may be darkned, and thoſe that are not tranſparent of themſelves, may be made ſo by the thickneſs or thinneſs of parts, that one may ſee or not ſee through them; and thus a thin body of Water, may be more tranſparent then a thick body of Ice, and a thin body of Ice may be more tranſparent then a thick body of water. As for the expanſion of Water, it doth not prove, that Water is more denſe then Ice, but on the contrary, it rather proves, that it is more rare; for that body whoſe parts are cloſe and united, is more denſe then that whoſe parts are fluid and dilating. Neither doth Expanſion alter the interior nature of a body, any more then contraction, but it alters onely the exterior poſture; as for example, when a man puts his body into ſeveral poſtures, it doth not alter him from being a man, to ſome other Creature, for the ſtretching of his legs, ſpreading out of his armes, puffing up his cheeks, *&c.* changes his nature, or natural figure, no more then

when

when he contracts his limbs cloſe together, crumpling up his body, or folding his armes, *&c.* but his poſture is onely changed; the like for the expanſions and contractions of other ſorts of Creatures. Nor can I readily give my aſſent to their opinion, that ſome liquors are more denſe then others; I mean ſuch as are perfectly moiſt, liquid and wet, as water is; for there be numerous ſorts of liquors, which are not throughly wet as water; and although their Circular lines may be different, as ſome edged, ſome pointed, ſome twiſted, and the like; yet they do not differ ſo much, but that their inherent figures are all of Circular lines; for the interior nature or figure of water, and ſo of all other moiſt and wet liquors, is Circular: and it is obſervable, that as Art may be an occaſion of diminiſhing thoſe points or edges of the Circular lines of ſome liquors, or of untwiſting them; ſo it may alſo be an occaſion that ſome liquid and wet bodies may become ſo pointed, edged, twiſted, *&c.* as may occaſion thoſe circles to move or turn into ſuch or ſuch exterior figures, not onely into triangular, ſquare, round, and ſeveral other forms or figures, as appears in Ice, Hail, Froſt, and flakes of Snow, but into ſuch figures as they name Spirits; which ſeveral ſorts of figures belonging all to one ſort of Creatures, may cauſe ſeveral refractions, reflections and inflections of the rayes of light. Wherefore Mechanicks may very much be miſtaken concerning the truth of the interior Nature of bodies, or natural Creatures, by

judging them onely according to their exterior figures.

24. *Of Salt, and of Sea- or Salt-water.*

THe reaſon, why Salt is made, or extracted out of Salt-water, is, that the Circular lines of Sea- or Salt-water, are pointed exteriouſly, but not interiouſly, which is the cauſe that the ſaltiſh parts may be eaſily divided from thoſe watry lines; and it is to be obſerved, that thoſe points when joyned to the watry circles, are rare, but being once ſeparated, either by Art, or a more natural way, by ſome ſorts of dividing motions, they become more denſe; yet not ſo denſe, but they may melt or return again into the firſt figure, which is a rare figure, and ſo become liquid ſalt, and afterwards they may be denſed or contracted again; for there is no other difference between dry and liquid ſalt, but what is made by the rarity or denſity of thoſe ſorts of points. As for that ſort of Salt, which is named volatile, it is when ſome of thoſe rare points become more dilated or rarified, then when they are joyned to the watry circle-lines; I ſay ſome, not all; for as ſome points do condenſe or contract into fixt ſalt, ſo others do dilate or ariſe into volatile ſalt. But perchance ſome will ſay, How can there be ſeveral ſorts of points, ſince a point is but a point? I anſwer; There may very well be ſeveral ſorts, conſidering the Nature of their

their ſubſtance; for ſome ſorts are rare, ſome denſe, ſome contracting, ſome dilating, ſome retenting, *&c.* beſides, all points are not alike, but there is great difference amongſt ſeveral pointed figures, for all are not like the point of a Pin or Needle, but (to alledg ſome groſs examples) there be points of Pyramids, points of Knives, points of Pins, points of the flame of a Candle, and numerous other ſorts, which are all ſeveral points, and not one like another; for I do not mean a Mathematical or imaginary point, ſuch as is onely made by the rational matter in the mind, (although even amongſt thoſe imaginary points there is difference; for you cannot imagine, or think of the ſeveral pointed figures of ſeveral ſorts or kinds of Creatures, or parts, but you will have a difference in your mind) but I mean pointed figures, and not ſingle points. It is alſo to be obſerved, that as ſome watry Circles will and may have points outwardly, ſo ſome have alſo points inwardly; for ſome watry Circles, as I have mentioned in my Philoſophical Opinions, are edged, to wit, ſuch as are in vitriol water; others pointed, as thoſe in ſalt water; and others are of other ſorts of points, as thoſe in cordial or hot waters; but thoſe laſt are more artificial; and all theſe are different in their ſorts or kinds, although a litttle difference in their own natures may appear great in our humane perception. Concerning Oyl, there is alſo difference between Oyl and other wet bodies; for Oyl, although it be rare, liquid and moiſt,

moiſt, yet we cannot ſay, it is abſolutely that which we name wet, as other liquors are, *viz.* Water and Wine, or natural juices; and ſince the interior natural figure of oyl is burning and hot, it is impoſsible to divide thoſe interior fiery points from the circle figure of Oyl without diſſolving thoſe liquid circle lines. But as the Penetrations of other acid and ſalt liquors are cauſed by their exterior points, ſo oyl, whoſe points are interiouſly in the circle-lines, cannot have ſuch quick effects of penetration as thoſe that are exteriouſly pointed: But miſtake me not, I do not mean ſuch exterior parts as are onely ſubject to our humane perception, but ſuch as cauſe thoſe Creatures or parts to be of ſuch a figure or nature.

25. *Of the Motions of Heat and Cold.*

THoſe which affim that *Heat* and *Cold* are the two primary and onely cauſes of the Productions of all natural things, do not conſider ſufficiently the variety of Nature, but think that Nature produces all by Art; and ſince Art is found out and practiſed by Man, Man conceits himſelf to be above Nature; But as neither Art, nor any particular Creature can be the cauſe or principle of all the reſt, ſo neither can heat and cold be the prime cauſe of all natural productions, no more then paint can produce all the parts of a man's face, as the Eyes, Noſe, Forehead, Chin, Cheeks, Lips,

Lips and the like, or a Periwig can produce a natural Head, or a ſuit of Clothes can make the body of Man, for then whenſoever the faſhioned Garments or Mode-dreſſes do change, men would of neceſsity change alſo; but Art cauſes groſs miſtakes and errors, not onely in ſenſitive, but alſo in rational perceptions; for ſenſe being deluded, is apt to delude Reaſon alſo, eſpecially if Reaſon be too much indulgent to ſenſe; and therefore thoſe judgments that rely much upon the perception of ſenſe, are rather ſenſitive then rational judgments; for ſenſe can have but a perception of the exterior figures of objects, and Art can but alter the outward form or figure, but not make or change the interior nature of any thing; which is the reaſon that artificial alterations cauſe falſe, at leaſt uncertain and various judgments, ſo that Nature is as various in mens judgments, as in her other works. But concerning heat and cold, my opinion is, that they are like ſeveral Colours, ſome Natural, and ſome Artificial; of which the Artificial are very inconſtant, at leaſt not ſo laſting as thoſe that are not made by Art; and they which ſay, that both heat and cold are not made by the ſenſories or ſenſitive organs, are in the right, if their meaning be that both heat and cold in their natures and with all their proprieties, as they are particular Creatures, are not made or produced by humane or animal ſenſes; nevertheleſs the ſenſitive animal perception of heat and cold is made by the ſenſitive motions in their ſenſitive

organs, for what heat and cold ſoever an animal Creature feels, the perception of it is made in the ſenſe of touch, or by thoſe ſenſitive motions in the parts of its body; for as the perception of any other outward object is not made by a real entrance of its parts into our ſenſories, ſo neither is all perception of heat and cold made by the intermixture of their particles with our fleſh, but they are patterned and figured out by the ſenſitive motions in the exterior parts of the body as well as other objects: I will not ſay, that cold or heat may not enter and intermix with the parts of ſome bodies, as fire doth intermix with fuel, or enters into its parts; but my meaning is, that the animal perception of heat and cold is not made this way, that is, by an intermixture of the parts of the Agent with the parts of the Patient, as the learned call them; that is, of the exterior object, and the ſentient; or elſe the perception of all exterior objects would be made by ſuch an intermixture, which is againſt ſenſe and reaſon; and therefore even in ſuch a commixture, where the parts of the object enter into the body of the ſentient, as fire doth into fuel, the perception of the motions of fire in the fuel, and the fuels conſumption or burning, is not made by the fire, but by the fuels own perceptive motions, imitating the motions of the fire; ſo that fire doth not turn the fuel into aſhes, but the fuel doth change by its own corporeal figurative motions, and the fire is onely an occaſion of it: The ſame may be ſaid of Cold. Neither is

every

every Creatures perception alike, no more then it can be ſaid, that one particular Creature, as for example Man, hath but one perception; for the perception of ſight and ſmelling, and ſo of every ſence, are different; nay, one and the ſame ſenſe may have as many ſeveral perceptions as it hath objects, and ſome ſorts of peceptions in ſome Creatures, are either ſtronger or weaker then in others; for we may obſerve, that in one and the ſame degree of heat or cold, ſome will have quicker and ſome ſlower perceptions then others; for example in the perception of touch, if ſeveral men ſtand about a fire, ſome will ſooner be heated then others; the like for Cold, ſome will apprehend cold weather ſooner then others, the reaſon is, that in their perception of Touch, the ſenſitive motions work quicker or ſlower in figuring or patterning out heat or cold, then in the perception of others. The ſame may be ſaid of other objects, where ſome ſentient bodies will be more ſenſible of ſome then of others, even in one and the ſame kind of perception. But if in all perceptions of cold, cold ſhould intermix with the bodies of animals, or other Creatures, like as ſeveral Ingredients, then all bodies upon the perception of cold would diſſolve their figures, which we ſee they do not; for although all diſſolving motions are knowing and perceptive, becauſe every particular motion is a particular knowledg and perception, yet not every perception requires a diſſolution or change of its figure: 'Tis true,

ſome

ſome ſorts or degrees of exterior heat and cold may occaſion ſome bodies to diſſolve their interior figures, and change their particular natures, but they have not power to diſſolve or change all natural bodies. Neither doth heat or cold change thoſe bodies by an intermixture of their own particles with the parts of the bodies, but the parts of the bodies change themſelves by way of imitation, like as men put themſelves into a mode-faſhion, although oftentimes the ſenſes will have faſhions of their own, without imitating any other objects; for not all ſorts of perceptions are made by Imitation or patterning, but ſome are made voluntarily, or by rote; as for example, when ſome do hear and ſee ſuch or ſuch things without any outward objects. Wherefore it is not certain ſteams, or agitated particles in the air, nor the vapours and effluviums of exterior objects, inſinuating themſelves into the pores of the ſentient, that are the cauſe of the Perception of Heat and Cold, as ſome do imagine; for there cannot probably be ſuch differences in the pores of animal Creatures of one ſort, as for example of Men, which ſhould cauſe ſuch a different perception as is found in them; for although exterior heat or cold be the ſame, yet ſeveral animals of the ſame ſort will have ſeveral and different perceptions of one and the ſame degrees of exterior heat and cold, as above mentioned; which difference would not be, if their perception was cauſed by a real entrance of hot and cold particles into the pores of their bodies:

Beſides,

Beſides, Burning-Fevers and Shaking-Agues, prove that ſuch effects can be without ſuch exterior cauſes. Neither can all ſorts of Heat and Cold be expreſſed by Wind, Air and Water, in Weather-glaſſes; for they being made by Art, cannot give a true information of the Generation of all natural heat and cold; but as there is great difference between Natural and Artificial Ice, Snow, Colours, Light, and the like; ſo between Artificial and Natural Heat and Cold; and there are ſo many ſeveral ſorts of heat and cold, that it is impoſsible to reduce them all to one certain cauſe or principle, or confine them to one ſort of Motions, as ſome do believe that all ſorts of Heat and Cold are made by motions tending inward and outward, and others, that by aſcending and deſcending, or riſing and depreſsing motions, which is no more probable, then that all Colours are made by the reflexion of Light, and that all White is made by reflecting the beams of light outward, and all black by reflecting them inward; or that a Man when he is on Horſe-back, or upon the top of an Houſe, or Steeple, or in a deep Pit or Mine, ſhould be of another figure then of the figure and nature of man, unleſs he were diſſolved by death, which is a total alteration of his figure; for neither Gravity nor Levity of Air, nor Almoſpherical Pillars, nor any Weather-glaſſes, can give us a true information of all natural heat and cold, but the ſeveral figurative corporeal motions, which make all things in Nature, do

alſo make ſeveral ſorts of heat and cold in ſeveral ſorts of Creatures. But I obſerve experimental Philoſophers do firſt cry up ſeveral of their artificial Inſtruments, then make doubts of them, and at laſt diſapprove them, ſo that there is no truſt nor truth in them, ſo much as to be relied on; for it is not an age, ſince Weather-glaſſes were held the onely divulgers of heat and cold, or change of weather, and now ſome do doubt they are not ſuch infallible Informers of thoſe truths; by which it is evident, that Experimental Philoſophy has but a brittle, inconſtant and uncertain ground, and theſe artificial Inſtruments, as Microſcopes, Teleſcopes, and the like, which are now ſo highly applauded, who knows, but may within a ſhort time have the ſame fate, and upon a better and more rational enquiry, be found deluders rather then true Informers. The truth is, there's not any thing that has and doth ſtill delude moſt mens underſtandings more, then that they do not conſider enough the variety of Natures actions, and do not imploy their reaſon ſo much in the ſearch of natures actions, as they do their ſenſes, preferring Art and Experiments before Reaſon, which makes them ſtick ſo cloſe to ſome particular opinions, and particular ſorts of Motions or Parts, as if there were no more Motions, Parts, or Creatures in Nature, then what they ſee and find out by their Artificial Experiments.

Thus the variety of Nature is a ſtumbling-block to moſt

moſt men, at which they break their heads of underſtanding, like blind men that run againſt ſeveral poſts or walls; and how ſhould it be otherwiſe, ſince Natures actions are Infinite, and Mans underſtanding finite? for they conſider not ſo much the interior Natures of ſeveral Creatures, as their exterior figures and Phonomena's, which makes them write many Paradoxes, but few Truths, ſuppoſing that Senſe and Art can onely lead them to the knowledg of truth, when as they delude rather their judgments inſtead of informing them. But Nature has placed Senſe and Reaſon together, ſo that there is no part or particle of Nature which has not its ſhare of reaſon as well as of ſenſe; for every part having ſelf-motion, hath alſo knowledg, which is ſenſe and reaſon, and therefore it is fit we ſhould not onely imploy our ſenſes, but chiefly our reaſon in the ſearch of the cauſes of natural effects; for Senſe is onely a workman, and Reaſon is the deſigner and ſurveigher, and as reaſon guides and directs, ſo ought ſenſe to work. But ſeeing that in this age, ſenſe is more in faſhion then reaſon, it is no wonder there are ſo many irregular opinions and judgments amongſt men; However, although it be the mode, yet I for my part ſhall not follow it, but leaving to our Moderns their Experimental or Mode-Philoſophy built upon deluding Art, I ſhall addict my ſelf to the ſtudy of Contemplative-Philoſophy, and Reaſon ſhall be my guide. Not that I deſpiſe ſenſe or ſenſitive knowledg,

knowledg, but when I ſpeak of ſenſe, I mean the perception of our five exterior ſenſes, helped (or rather deluded) by Art and Artificial inſtruments; for I ſee that in this preſent Age, Learned men are full of Art and Artificial trials, and when they have found out ſomething by them, they preſently judg that all natural actions are made the ſame way; as for example, when they find by Art that Salt will make Snow congeal into Ice, they inſtantly conclude from thence that all natural congelations are made by ſaline particles, and that the *Primum Frigidum*, or the Principal cauſe of all natural cold muſt needs be ſalt, by reaſon they have found by Art that ſalt will do the ſame effect in the aforeſaid commixture with Snow. But how groſly they are deceived, rational men may judg: If I were a Chymiſt, and acknowledged their common Principles, I might perchance have ſome belief in it, but not whileſt I follow reaſon; nay, I perceive that oftentimes our ſenſes are deluded by their own irregularities, in not perceiving always truly and rightly the actions of Art, but miſtaking them, which is a double error; and therefore that particular ſenſitive knowledg in man which is built meerly upon artificial experiments, will never make him a good Philoſopher, but regular ſenſe and reaſon muſt do it, that is, a regular ſenſitive and rational inquiſition into the various actions of Nature; For put the caſe a Microſcope be true concerning the magnifying of an exterior

exterior object, but yet the magnitude of the object cannot give a true information of its interior parts, and their motions, or elſe great and large bodies would be interiouſly known even without Microſcopes: The truth is, our exterior ſenſes can go no further then the exterior figures of Creatures, and their exterior actions, but our reaſon may pierce deeper, and conſider their inherent natures and interior actions; and although it do ſometimes erre, (for there can be no perfect or univerſal knowledg in a finite part concerning the Infinite actions of Nature) yet it may alſo probably gueſs at them, and may chance to hit the Truth. Thus Senſe and Reaſon ſhall be the ground of my Philoſophy, and no particular natural effects, nor artificial inſtruments; and if any one can ſhew me a better and ſurer ground or Principle then this, I ſhall moſt willingly and joyfully embrace it.

26. *Of the Meaſures, Degrees, and different ſorts of Heat and Cold.*

SOme Experimental Philoſophers are much inquiſitive into the meaſures of Heat and Cold; and as we have ſetled ſtandards for weight and magnitude, and time, ſo they endeavour to meaſure the varying temperature, and gradual differences of heat and cold; but do what they can, their artificial meaſures or weights neither will nor can be ſo exact as the

natural are, to wit, ſo as not to make them err in more or leſs: Neither is it poſsible, that all the degrees of heat and cold in Nature can be meaſured; for no man can meaſure what he doth not know, and who knows all the different ſorts of heats and colds? Nay, if man did endeavour to meaſure onely one ſort of heat or cold, as for example, the degrees of the heat or coldneſs of the air, how is it poſsible that he ſhould do it, by reaſon of the continual change of the motions of heat or cold of the air, which are ſo inconſtant, that it were ſurer to meaſure the fluidity of the air, then to meaſure the degrees of heat or cold of the air; for the temper of the air and of its heat and cold, may vary ſo, as many times we ſhall never find the ſame meaſure again. Wherefore if we deſire to have ſome knowledg of the degrees of ſome ſorts of heat or cold, my opinion is, that we may more eaſily attain to it by the help of rational perception, then by a ſenſitive inſpection of artificial Weather-glaſſes, or the like; for reaſon goes beyond ſenſe; and although the ſenſitive perception is beſt next the rational, yet the rational is above the ſenſitive. But ſome of the learned conceive the degrees of heat and cold are made by bare diviſions, whenas, in my opinion, they are made by the ſeveral degrees of their corporeal figurative motions: They do alſo imagine, that there's no degree but muſt aſcend from one, to two; from two, to three; and ſo forth through all numbers: and that from one to twenty, there

there be ſo many degrees as there be numbers; when as, in my opinion, there's no more but one degree required from one to a Million, or more; for though both in Nature and Art there are degrees from one ſingle figure to another, yet there may alſo be but one degree from one to a million, without reckoning any intermediate degrees or figures: ſo that a body, when it moves quick or ſlow, needs not to go through all the intermediate degrees of quickneſs or ſlowneſs, as to move quicker and quicker, ſlower and ſlower; but may immediately move from a very ſlow, to a very quick degree: the truth is, no man is able to meaſure the infinite degrees of natural motions; for though Nature conſiſts of particular finites, yet it doth alſo conſiſt of infinite particulars; finite in figure, infinite in number; and who can number from finite to infinite? But having diſcourſed hereof elſewhere, I return to heat and cold, aud let others diſpute whether the degrees of heat and cold in the air, be the ſame with the degrees of animal perceptions, or with the degrees of animal cold and heat; my opinion is, that there being ſeveral ſorts, and ſeveral particular heats and colds, they cannot be juſt alike each other, but there's ſome difference betwixt them; as for example, there are ſhaking, freezing, chilly, windy, numb, ſtiff, rare, denſe, moiſt, dry, contracting, dilating, aſcending, deſcending, and other numerous ſorts of colds; nay, there are ſome ſorts of candied figures made by heat, which appear as if they

they were frozen: Alſo there are fluid colds which are not wet, as well as fluid heats that are not dry; for Phlegm is fluid, and yet not wet; and ſome ſorts of air are fluid, and not wet; I ſay ſome, not all; for ſome are hot and moiſt, others hot and dry. The ſame may be ſaid of ſome ſorts of heat and cold; for ſome are moiſt, and ſome dry; and there may be at one and the ſame time a moiſt cold in the air, and a dry cold in water; which, in my opinion, is the reaſon that in ſealed Weather-glaſſes, according to ſome Experimenters relations, ſometimes the air doth not ſhrink, but rather ſeems to be expanded when the weather grows colder, and that the water contracts; not that the cold contraction of water cauſes an expanſion of the air to prevent a *Vacuum*; for there cannot be any ſuch thing as a *Vacuum* in Nature; but that there is a moiſt cold in the air, and a dry cold in the water, whereof the dry cold cauſes a contraction, and the moiſt cold an expanſion; nay, there is often a moiſt and dry cold in the air at one and the ſame time; ſo that ſome parts of the air may have a moiſt cold, and the next adjoying parts a dry cold, and that but in a very little compaſs; for there may be ſuch contractions and dilations in Nature, which make not a hairs breadth difference, Nature being ſo ſubtil and curious, as no particular can trace her ways; and therefore when I ſpeak of contractions and dilations, I do not mean they are all ſuch groſs actions perceptible by our exterior ſenſes as the works of Art, but ſuch

ſuch as the curioſity of Nature works. Concerning the ſeveral ſorts of animal heat and cold, they are quite different from the Elemental, and other ſorts of heat and cold; for ſome men may have cold fits of an Ague under the Line, or in the hotteſt Climates; and others Burning-Feavers under the Poles, or in the coldeſt climates. 'Tis true, that Animals, by their perceptions, may pattern out the heat or cold of the air, but theſe perceptions are not always regular or perfect; neither are the objects at all times exactly preſented as they ſhould, which may cauſe an obſcurity both in Art, and in particular ſenſitive perceptions, and through this variety the ſame ſort of Creatures may have different perceptions of the ſame ſorts of heat and cold. Beſides it is to be obſerved, that ſome parts or Creatures, as for example, Water, and the like liquors, if kept cloſe from the perception either of heat or cold, will neither freeze, nor grow hot; and if Ice and Snow be kept in a deep Pit, from the exterior object of heat, it will never thaw, but continne Ice or Snow, whenas being placed near the perception of the Sun, Fire, or warm Air, its exterior figure will alter from being Ice to Water, and from being cold to hot, or to an intermediate temper betwixt both; nay, it may alter from an extream degree of cold to an extream degree of heat, according as the exterior object of heat doth occaſion the ſenſitive perceptive motions of Water or Ice to work; for extreams are

apt to alter the natural temper of a particular Creature, and many times ſo as to cauſe a total diſſolution of its interior natural figure; (when I name extreams, I do not mean any uttermoſt extreams in Nature; for Nature being Infinite, and her particular actions being poiſed and ballanced by oppoſites, can never run into extreams; but I call them ſo in reference onely to our perception, as we uſe to ſay, it is extream hot, or extream cold) And the reaſon of it is, that Water by its natural perceptive motions imitates the motions of heat or cold, but being kept from the perception of them, it cannot imitate them. The ſame reaſon may be given upon the experiment, that ſome bodies being put into water, will be preſerved from being frozen or congealed; for they being in water, are not onely kept from the perception of cold, but the water doth as a guard preſerve them; which guard, if it be overcome, that is, if the water begin to freeze, then they will do ſo too. But yet all colds are not airy, nor all heats ſunny or fiery; for a man, as I mentioned before, may have ſhaking fits of an Ague in the hotteſt climate, or ſeaſon, and burning fits of a Fever in the coldeſt climate or ſeaſon; and as there is difference between elemental and animal cold and heat, ſo betwixt other ſorts; ſo that it is but in vain to prove all ſorts of heat and cold by Artificial Weather-glaſſes, ſuppreſsions and elevations of water, Atmoſphærical parts, and the like; for it is not the air that makes all cold, no not that cold which

which is called Elementary, no more then it makes heat; but the corporeal, figurative, ſelf-moving, perceptive, rational and ſenſitive parts of Nature, which make all other Creatures, make alſo heat and cold. Some Learned make much ado about Antiperiſtaſis, and the flight of thoſe two contrary qualities, *heat* and *cold*, from each other; where, according to their opinion, one of them being ſurrounded and beſieged by the other, retires to the innermoſt parts of the body which it poſſeſſes, and there by recollecting its forces, and animating it ſelf to a defence, is intended or increaſed in its degree, and ſo becomes able to reſiſt its adverſary; which they prove by the cold expelled from the Earth, and Water by the Sun-beams, which they ſay retires to the middle region of the Air, and there defends it ſelf againſt the heat that is in the two other, *viz.* the upper, and the lower Regions; and ſo it doth in the Earth; for, ſay they, we find in Summer, when the air is ſultry hot, the cold retreats into Cellars and Vaults, and in Winter when the air is cold, they are the Sanctuary and receptacle of heat; ſo that the water in wells and ſprings, and the like places under ground, is found warm and ſmoaking, when as the water which is expoſed to the open air, by cold is congealed into Ice. But whatſoever their opinion be, I cannot believe that heat and cold run from each other as Children at Boe-peep; for concerning the Earths being warm in Winter, and cold in Summer, it is not, in my opinion, cauſed by hot

hot or cold Atoms, flying like Birds out of their neſts, and returning to the ſame; nor is the Earth like a Store-houſe, that hoards up cold and heat at ſeveral ſeaſons in the year, but there is a natural temper of cold and heat as well in the Earth, as in other Creatures; and that Vaults, Wells, and Springs under ground, are warm in Winter, when the exterior air is cold; the reaſon is, not that the heat of the air, or the Calorifick atomes, as they call them, are retired thither to defend themſelves from the coldneſs of the air; but they being ſo deep in the Earth where the cold cannot enter, are kept from the perception of cold, ſo as they cannot imitate ſo well the motions of cold as other Creatures that are expoſed to the open air. The like may be ſaid of the heat of the Sun in Summer, which cannot penetrate deeper into the bowels of the Earth then cold can. The truth is, the Earth is to them like an Umbrello, which defends or keeps men from the Sun, rain, wind, duſt, *&c.* but although it defends them from the heat of the Sun, or coldneſs of wind, yet they have thoſe qualities naturally within themſelves, ſometimes more, and ſometimes leſs: and ſo has the Earth its natural temper of heat and cold; But what Umbrello the middle region has, whether it be ſome Planet, or any thing elſe, I am not able to determine, unleſs I had been there and obſerved it; nay, ten to one but I might even then have been miſtaken. Wherefore all the contentions and diſputes about the doctrine of Antiperiſtaſis, are, in my judgment,

judgment, to little purpoſe, ſince we are not able to know all the differences of heat and cold; for if men conceive there is but one heat and cold in Nature, they are miſtaken; and much more if they think they can meaſure all the ſeveral ſorts of heat and cold in all Creatures by artificial experiments; for as much as a Natural man differs from an artificial ſtatue or picture of a man, ſo much differs a natural effect from an artificial, which can neither be ſo good, nor ſo laſting as a natural one: If Charles's Wain, the Axes of the Earth, and the motions of the Planets, were like the pole, or axes, or wheels of a Coach, they would ſoon be out of order. Indeed artificial things are pretty toys to imploy idle time; nay, ſome are very uſeful for our conveniency, but yet they are but Natures baſtards or changelings, if I may ſo call them; and though Nature takes ſo much delight in variety, that ſhe is pleaſed with them, yet they are not to be compared to her wiſe and fundamental actions; for Nature, being a wiſe and provident Lady, governs her parts very wiſely, methodically and orderly; alſo ſhe is very induſtrious, and hates to be idle, which makes her imploy her time as a good Huſwife doth, in Brewing, Baking, Churning, Spinning, Sowing, *&c.* as alſo in Preſerving for thoſe that love Sweet-meats, and in Diſtilling for thoſe that take delight in Cordials; for ſhe has numerous imployments, and being infinitely ſelf-moving, never wants work, but her artificial works are her works of delight,

pleaſure and paſtime : Wherefore thoſe that imploy their time in Artificial Experiments, conſider onely Natures ſporting or playing actions; but thoſe that view her wiſe Government, in ordering all her parts, and conſider her changes, alterations and tempers in particulars, and their cauſes, ſpend their time more uſefully and profitably ; and truly to what purpoſe ſhould a man beat his brains, and weary his body with labours about that wherein he ſhall loſe more time, then gain knowledg? But if any one would take delight in ſuch things, my opinion is, that our female ſex would be the fitteſt for it, for they moſt commonly take pleaſure in making of Sweet-meats, Poſſets, ſeveral ſorts of Pyes, Puddings, and the like; not ſo much for their own eating, as to imploy their idle time; and it may be, they would prove good Experimental Philoſophers, and inform the world how to make artificial Snow by their Creams or Poſſets beaten into froth, and Ice by their clear, candied or cruſted quiddinies or conſerves of fruits; and Froſt by their candied herbs and flowers; and Hail by their ſmall comfits made of water and ſugar with whites of Eggs ; and many other the like figures which reſemble Beaſts, Birds, Vegetables, Minerals, *&c.* But the men ſhould ſtudy the cauſes of thoſe Experiments, and by this ſociety the Commonwealth would find a great benefit; for the Woman was given to Man not onely to delight, but to help and aſsiſt him; and I am confident, Women would labour as much with

with Fire and Furnace as Men, for they'l make good Cordials and Spirits; but whether they would find out the Philoſophers-ſtone, I doubt; for our ſex is more apt to waſte, then to make Gold; however, I would have them try, eſpecially thoſe that have means to ſpend; for who knows but Women might be more happy in finding it out, then Men, and then would Men have reaſon to imploy their time in more profitable ſtudies, then in uſeleſs Experiments.

27. *Of Congealation and Freezing.*

THe Congelation of Water into Ice, Snow, Hail, and the like, is made by its own corporeal figurative motions, which upon the perception of the exterior object of cold, by the way of imitation, do contract and condenſe water into ſuch or ſuch a figure. Some are of opinion, that Water, or the like liquors, are not contracted, but expanded or rarified by freezing; which they prove both by the levity of congealed Water, and the breaking of Glaſſes, Earthen Bottles, or other the like Veſſels in which water is contained when it freezes: But although I mentioned in my former diſcourſe, that there are ſeveral ſorts of colds, as for example, moiſt and dry colds, whereof theſe contract and condenſe, thoſe dilate and rarifie; ſo that there are cold dilations, as well as cold contractions; yet Freezing or Congelation being none of the ſorts

of

of moiſt, but of dry colds; it is not made by expanding or dilating, but by contracting and condenſing motions; for, that liquid bodies when frozen are more extended, 'tis not the freezing motions that cauſe thoſe extenſions; but water being of a dilative nature, its interior parts ſtrive againſt the exterior, which figurative motions do imitate the motions of cold, or froſt, and in that ſtrife the water becomes extended or dilated, when congealed into Ice: But the queſtion is, Whether ſolid bodies do dilate or extend when they freeze? and my opinion is they do not; for that ſolid bodies, as Metal, and the like, are apt to break in a hard froſt, doth not prove an expanſion, but the diviſion of their parts is rather made by contraction; for though the motions of cold in metal are not ſo much exteriouſly contracting as to be perceived by our optick ſenſe, in its bulk or exterior magnitude, as they are in the body of water, whoſe interior nature is dilative; yet by the diviſion which cold cauſes, it may well be believed, that freezing hath an interior contractive effect, otherwiſe it could not divide ſo as many times it doth; Wherefore I believe that ſolid bodies break by an extream and extraordinary contraction of their interior parts, and not by an extraordinary expanſion. Beſides this breaking ſhews a ſtrong ſelf-motion in the action of congealing or freezing, for the motions of cold are as ſtrong and quick as the motions of heat: Nay, even thoſe Experimental Philoſophers which

are

are ſo much for expanſion, confeſs themſelves that water is thicker and heavier in Winter then in Summer; and that Ships draw leſs water, and that the water can bear greater burdens in Winter then in Summer; which doth not prove a rarefaction and expanſion, but rather a contraction and condenſation of water by cold: They likewiſe affirm, that ſome ſpirituous liquors of a mixt nature, will not expand, but on the contrary, do viſibly contract in the act of freezing. Concerning the levity of Ice, I cannot believe it to be cauſed by expanſion; for expanſion will not make it lighter, but 'tis onely a change of the exterior ſhape or figure of the body; Neither doth Ice prove Light, becauſe it will float above water; for a great Ship of wood which is very heavy, will ſwim, when as other ſorts of bodies that are light and little, will ſink. Nor are minute bubbles the cauſe of the Ice's levity, which ſome do conceive to ſtick within the Ice, and make it light; for this is but a light and airy opinion, which has no firm ground; and it might as well be ſaid that airy bubles are the cauſe that a Ship keeps above water; but though wind and ſails make a Ship ſwim faſter, yet they will not hinder it from ſinking. The truth is, the chief cauſe of the levity or gravity of bodies, is quantity of bulk, ſhape, purity and rarity, or groſneſs and denſity, and not minute bubles, or inſenſible atomes, or pores, unleſs porous bodies be of leſs quantity in water, then ſome denſe bodies of the ſame magnitude. And

thus it is the Triangular figure of Snow that makes it light, and the ſquareneſs that makes Ice heavier then Snow; for if Snow were porous, and its pores were fill'd with atomes, it would be much heavier then its principle, Water. Beſides, It is to be obſerved, that not all kind of Water is of the ſame weight, by reaſon there are ſeveral ſorts of Circle-lines which make water; and therefore thoſe that meaſure all water alike, may be miſtaken; for ſome Circle-lines may be groſs, ſome fine, ſome ſharp, ſome broad, ſome pointed, *&c.* all which may cauſe a different weight of water. Wherefore freezing, in my opinion, is not cauſed by rarifying and dilating, but by contracting, condenſing and retenting motions: and truly if Ice were expanded by congelation, I would fain know, whether its expanſions be equal with the degrees of its hardneſs; which if ſo, a drop of water might be expanded to a great bigneſs; nay, if all frozen liquors ſhould be inlarged or extended in magnitude, according to the ſtrength of the freezing motions, a drop of water at the Poles would become, I will not ſay a mountain, but a very large body. Neither can rarefaction, in my opinion, be the cauſe of the Ice's expanſion; for not all rarified bodies do extend; and therefore I do rather believe a clarefaction in Ice, then a rarefaction, which are different things. But ſome may object, That hot and ſwelling bodies do dilate, and diffuſe heat and ſcent without an expanſion of their ſubſtance. I anſwer,

That

That is more then any one is able to prove: the truth is, when a fiery-coal, and an odoriferous body caſt heat and ſcent (as we uſe to ſay) 'tis not that they do really and actually expand or dilate heat or ſcent without body, for there can be no ſuch thing as an immaterial heat or ſcent: neither can *Nothing* be dilated or expanded; but both heat and ſcent being one thing with the hot and ſmelling body, are as exterior objects patterned out by the ſenſitive motions of the ſentient body, and ſo are felt and ſmelt, not by an actual emiſsion of their own parts, or ſome heating and ſmelling atomes, or an immaterial heat and ſmell, but by an imitation of the perceptive motions in the ſentient ſubject. The like for cold; for great ſhelves or mountains of Ice, do not expand cold beyond their icy bodies; but the air patterns out the cold, and ſo doth the perception of thoſe Seamen that ſail into cold Countries; for it is well to be obſerved, that there is a ſtint or proportion in all natures corporeal figurative motions, to wit, in her particulars, as we may plainly ſee in every particular ſort or ſpecies of Creatures, and their conſtant and orderly productions; for though particular Creatures may change into an infinite variety of figures, by the infinite variety of natures corporeal figurative motions, yet each kind or ſort is ſtinted ſo much as it cannot run into extreams, nor make a confuſion, although it makes a diſtinguiſhment between every particular Creature even in one and the ſame ſort. And hence we may conclude, that

Nature

Nature is neither abſolutely neceſsitated, nor has an abſolute free-will; for ſhe is ſo much neceſsitated, that ſhe depends upon the All-powerfull God, and cannot work beyond her ſelf, or beyond her own nature; and yet hath ſo much liberty, that in her particulars ſhe works as ſhe pleaſeth, and as God has given her power; but ſhe being wiſe, acts according to her infinite natural wiſdom, which is the cauſe of her orderly Government in all particular productions, changes and diſſolutions, ſo that all Creatures in their particular kinds, do move and work as Nature pleaſes, orders and directs; and therefore, as it is impoſsible for Nature to go beyond her ſelf; ſo it is likewiſe impoſsible that any particular body ſhould extend beyond it ſelf or its natural figure. I will not ſay, that heat or cold, or other parts and figures of Nature, may not occaſion other bodies to dilate or extend; but my meaning is, that no heat or cold can extend without body, or beyond body, and that they are figured and patterned out by the motions of the ſentient, which imitating or patterning motions of the ſentient body cannot be ſo perfect or ſtrong as the original motions in the object it ſelf. Neither do I ſay, that all parts or bodies do imitate, but ſome, and at ſome times there will be more Imitators then at others, and ſometimes none at all; and the imitations are according as the imitating or patterning parts are diſpoſed, or as the object is preſented. Concerning the degrees of a viſible expanſion,

expanſion, they cannot be declared otherwiſe then by the viſibly extended body, nor be perceived by us, but by the optick ſenſe: But, miſtake me not, I do not mean, that the degrees of heat and cold can onely be perceived by our optick ſenſe, but I ſpeak of bodies viſibly expanded by heat and cold; for ſome degrees and ſorts of heat and cold are ſubject to the humane perception of ſight, ſome to the perception of touch, ſome to both, and ſome to none of them; there being ſo many various ſorts and degrees both of heat and cold, as they cannot be altogether ſubject to our groſſer exterior ſenſes, but thoſe which are, are perceived, as I ſaid, by our perception of ſight and touch; for although our ſenſitive perceptions do often commit errors and miſtakes, either through their own irregularity, or ſome other ways; yet next to the rational, they are the beſt informers we have; for no man can naturally go beyond his rational and ſenſitive perception. And thus, in my opinion, the nature of Congelation is not effected by expanding or dilating, but contracting and condenſing motions in the parts of the ſentient body, which motions in the congelation of water do not alter the interior nature of water, but onely contract its exterior figure into the figure either of Ice, Snow, Hail, Hoarfroſt, or the like, which may be proved by their return into the former figure of water, whenſoever they diſſolve; for whereſoever is a total change, or alteration of the interior natural motions of a Creature, when

once diſſolved, it will never regain its former figure; and therefore although the exterior figures of congealed water are various and different, yet they have all but one interior figure, which is water, into which they return as into their principle, whenſoever they change their exterior figures by diſſolving and dilating motions; for as a laughing and frowning countenance doth not change the nature of a man, ſo neither do they the nature of water. I do not ſpeak of artificial, but of natural congealed figures, whoſe congelation is made by their own natural figurative motions; But although all congelations are ſome certain kind of motions, yet there may be as many particular ſorts of congelations, as there are ſeveral ſorts of frozen or congealed bodies; for though I name but one figure of Snow, another of Ice, another of Hail, *&c.* yet I do not deny, but there may be numerous particular ſorts and figures of Ice, Snow, Hail, *&c.* all which may have their ſeveral freezing or congealing motions; nay, freezing in this reſpect may very well be compared to burning, as being oppoſite actions; and as there are various ſorts of burning, much differing from each other, ſo there are of freezing; for although all burning is of the nature of fire, yet not all burning is an elemental fire; for example, Lime, and ſome Vegetables, and other Creatures have burning effects, and yet are not an Elemental fire: neither doth the Sun and ordinary fire burn juſt alike. The ſame may be ſaid of Freezing; and I obſerve,

obſerve, that fluid and rare parts are more apt to freeze, then ſolid and denſe bodies; for I do not believe all ſorts of metal can freeze, ſo as water, or watery liquors, unleſs they were made liquid. I will not ſay, that Minerals are altogether inſenſible of cold or froſt, but they do not freeze like liquid bodies; nay, not all liquid bodies will freeze; as for example, ſome ſorts of ſpirituous liquors, Oil, Vinous ſpirits, Chymical extracts, *&c.* which proves, that not all (that is to ſay) the infinite parts of Nature, are ſubject to one particular kind of action, to wit, the action of freezing; for if Congelation did extend to the infinite parts of Nature, it would not be a finite and particular, but an infinite action; but, as I ſaid, liquid bodies are more apt to freeze, (eſpecially water and watery liquors,) then denſe and hard bodies, or ſome ſorts of oil, and ſpirits; for, as we ſee that fire cannot have the ſame operation on all bodies alike, but ſome it cauſes to conſume and turn to aſhes, ſome it hardens, ſome it ſoftens, and on ſome it hath no power at all: So its oppoſite Froſt or Cold cannot congeal every natural body, but onely thoſe which are apt to freeze or imitate the motions of cold. Neither do all theſe bodies freeze alike, but ſome ſlower, ſome quicker; ſome into ſuch, and ſome into another figure; as for example, even in one kind of Creatures, as animals; ſome Beaſts, as Foxes, Bears, and the like, are not ſo much ſenſible of cold, as Man, and ſome other animal Creatures; and dead animals,

or

or parts of dead animals, will freeze much ſooner then thoſe which are living ; not that living animals have more natural life then thoſe we call dead ; for animals, when diſſolved from their animal figure, although they have not animal life, yet they have life according to the nature of the figure into which they did change ; but, becauſe of their different perceptions ; for a dead or diſſolved animal, as it is of another kind of figure then a living animal, ſo it has alſo another kind of perception, which cauſes it to freeze ſooner then a living animal doth. But I cannot apprehend what ſome Learned mean by the powerful effects of cold upon inanimate bodies ; whether they mean, that cold is onely animate, and all other bodies inanimate ; or whether both cold and other bodies on which it works, be inanimate ; if the later, I cannot conceive how inanimate bodies can work upon each other, I mean ſuch bodies as have neither life nor motion, for without life or motion there can be no action : but if the former, I would fain know whether Cold be ſelf-moving ? if not, I ask, What is that which moves it ? Is it an Immaterial Spirit, or ſome corporeal being ? If an Immaterial Spirit, we muſt allow, that this Spirit is either ſelf-moving, or muſt be moved by another ; if it be moved by another Being, and that ſame Being again by another ; we ſhall after this manner run into infinite, and conclude nothing ; But if that Imaterial Spirit have ſelf-motion, why may not a natural corporeal being have the like,

like: they being both Creatures of God, who can as well grant ſelf-motion to a corporeal, as to an incorporeal Being; nay, I am not able to comprehend how Motion can be attributed to a Spirit; I mean, natural motion, which is onely a propriety of a body, or of a corporeal Being: but if Cold be ſelf-moving, then Nature is ſelf-moving; for the cauſe can be no leſs then the effect; and if Nature be ſelf-moving, no part of Nature can be inanimate; for as the body is, ſo are its parts; and as the cauſe, ſo its effects. Thus ſome Learned do puzle themſelves and the world with uſeleſs diſtinctions into animate and inanimate Creatures, and are ſo much afraid of ſelf-motion, as they will rather maintain abſurdities and errors, then allow any other ſelf-motion in Nature, but what is in themſelves; for they would fain be above Nature, and petty Gods, if they could but make themſelves Infinite; not conſidering that they are but parts of Nature, as all other Creatnres: Wherefore I, for my part, will rather believe as ſenſe and reaſon guides me, and not according to intereſt, ſo as to extoll my own kind above all the reſt, or above Nature her ſelf. And thus to return to Cold; as Congelation is not a Univerſal or Infinite action, which extends to the Infinite parts of Nature, and cauſes not the like effects in thoſe Creatures that are perceptible of it; ſo I do alſo obſerve, that not any other ſorts of bodies but Water will congeal into the figure of Snow, when as

there are many that will turn into the figure of Ice; beſides, I obſerve that air doth not freeze beyond its degree of conſiſtency; for if it did, no animal Creature would be able to breath, ſince all or moſt of them are ſubject to ſuch a ſort of reſpiration, as requires a certain intermediate degree of air, neither too thick, nor too thin; what reſpirations other Creatures require, I am not able to determine; for as there are ſeveral infinite parts and actions of Nature, ſo alſo ſeveral ſorts of Reſpirations; and I believe, that what is called the ebbing and flowing of the Sea, may be the Seas Reſpiration; for Nature has ordered for every part or Creature that which is moſt fitting and proper for it.

Concerning Artificial Congelations, as to turn Water or Snow into the figure of Ice, by the commixture of Salt, Nitre, Allum, or the like, it may, very probably, be effected; for Water and watery liquors, their interior figure being Circular, may eaſily change, by contracting that Circular figure into a Triangle or ſquare; that is, into Ice or Snow, (for Water, in my opinion, has a round or Circular interior figure, Snow a Triangular, and Ice a ſquare; I do not mean an exact Mathematical Triangle or Square, but ſuch a one as is proper for their figures) and that the mixture of thoſe, or the like ingredients, being ſhaken together in a Vial, doth produce films of Ice on the outſide of the Glaſs, as Experimenters relate; proves, not onely that the motions of Cold are very ſtrong, but alſo that there

there is perception in all parts of Nature, and that all Congelations, both natural and artificial, are made by the corporeal perceptive motions which the ſentient has of exterior cold; which is alſo the reaſon, that Salt being mixt with Snow, makes the liquor always freeze firſt on that ſide of the Veſſel where the mixture is; for thoſe parts which are neareſt, will imitate firſt the motions of froſt, and after them the neighbouring parts, until they be all turned into Ice: The truth is, that all or moſt artificial experiments are the beſt arguments to evince, there is perception in all corporeal parts of Nature; for as parts are joyned, or commix with parts; ſo they move or work accordingly into ſuch or ſuch figures, either by the way of imitation, or otherwiſe; for their motions are ſo various, as it is impoſsible for one particulare to deſcribe them all; but no motion can be without perception, becauſe every part or particle of Nature, as it is ſelf-moving, ſo it is alſo ſelf-knowing and perceptive; for Matter, Self-motion, Knowledg and Perception, are all but one thing, and no more differing nor ſeparable from each other, then Body, Place, Magnitude, Colour and Figure; Wherefore Experimental Philoſophers cannot juſtly blame me for maintaining the opinion of Self-motion, and a general Perception in Nature.

But to return to Artificial Congelations; there is as much difference between Natural and Artificial Ice and Snow, as there is between Chalk and Cheeſe; or between

between a natural Child, and a Baby made of Paſte or Wax, and Gummed-ſilk; or between artificial Glaſs, and natural Diamonds; the like may be ſaid of Hail, Froſt, Wind, *&c.* for though their exterior figures do reſemble, yet their interior natures are quite different; and therefore, although by the help of Art ſome may make Ice of Water or Snow, yet we cannot conclude from hence that all natural Ice is made the ſame way, by ſaline particles, or acid Spirits, and the like; for if Nature ſhould work like Art, ſhe would produce a man like as a Carver makes a ſtatue, or a Painter draws a picture: beſides, it would require a world of ſuch ſaline or acid particles to make all the Ice that is in Nature. Indeed it is as much abſurdity, as impoſsibility, to conſtitute ſome particular action the common principle of all natural heat or cold, and to make a Univerſal cauſe of a particular effect; for no particular Part or Action can be prime in Nature, or a fundamental principle of other Creatures or actions, although it may occaſion ſome Creatures to move after ſuch or ſuch a way. Wherefore thoſe that will needs have a *Primum Frigidum*, or ſome Body which they ſuppoſe muſt of neceſsity be ſupremely cold, and by participation of which, all other cold Bodies obtain that quality, whereof ſome do contend for Earth, ſome for Water, others for Air; ſome for Nitre, and others for Salt, do all break their heads to no purpoſe; for firſt, there are no extreams in Nature, and therefore

fore no Body can be ſupreamely cold, nor ſupreamly hot: Next, as I ſaid, it is impoſsible to make one particular ſort of Creatures the principle of all the various ſorts of heat or cold that are in Nature; for there is an Elemental heat and cold, a Vegetable, Mineral, Animal heat and cold; and there may be many other ſorts which we do not know; and how can either Earth or Water, or Nitre, or Salt, be the Principle of all theſe different colds? Concerning the Earth, we ſee that ſome parts of the Earth are hot, and ſome cold; the like of Water and Air; and the ſame parts which are now hot, will often in a moment grow cold, which ſhews they are as much ſubject to the perception of heat and cold, as ſome other Creatures, and doth plainly deny to them the poſsibility of being a *Primum Frigidum.* I have mentioned in my Poetical Works, that there is a Sun in the Center of the Earth; and in another place, I have deſcribed a Chymical heat; but theſe being but Poetical Fancies, I will not draw them to any ſerious proofs; onely this I will ſay, that there may be degrees of heat and cold in the Earth, and in Water, as well as there are in the Air; for certainly the Earth is not without Motion, a dull, dead, moveleſs and inanimate body; but it is as much interiouſly active, as Air and Water are exteriouſly; which is evident enough by the various productions of Vegetables, Minerals, and other bodies that derive their off-ſpring out of the Earth: And as for Nitre and Salt, although they may

occaſion ſome ſorts of Colds in ſome ſorts of Bodies, like as ſome ſorts of food, or tempers of Air, or the like, may work ſuch or ſuch effects in ſome ſorts of Creatures; yet this doth not prove that they are the onely cauſe of all kinds of heat and cold that are in Nature. The truth is, if Air, Water, Earth, Nitre, or Salt, or inſenſible, roving and wandering atomes ſhould be the only cauſe of cold; then there would be no difference of hot and cold climates, but it would freeze as well under the Line, as it doth at the Poles. But there's ſuch a ſtir kept about Atoms, as that they are ſo full of action, and produce all things in the world, and yet none deſcribes by what means they move, or from whence they have this active power.

Laſtly, Some are of opinion, that the chief cauſe of all cold, and its effects, is wind; which they deſcribe to be air moved in a conſiderable quantity, and that either forwards onely, or in an undulating motion; which opinion, in my judgment, is as erroneous as any of the former, and infers another abſurdity, which is, that all Winds are of the ſame nature, when as there are as many ſeveral ſorts and differences of Winds, as of other Creatures; for there are ſeveral Winds in ſeveral Creatures; Winds in the Earth are of another kind then thoſe in the Air, and the Wind of an animal breath, is different from both; nay, thoſe that are in the air, are of different ſorts; ſome cold and dry, ſome hot and moiſt, and ſome temperate, *&c.*

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which how they can all produce the effect of cold or freezing by the compreſsion of the air, I am not able to judg: onely this I dare ſay, that if Wind cauſes cold or froſt; then in the midſt of the Summer, or in hot Climates, a vehement wind would always produce a great Froſt; beſides it would prove, that there muſt of neceſsity be far greater winds at the Poles, then under the Æquinoctial, there being the greateſt cold: Neither will this principle be able to reſolve the queſtion, why a man that has an Ague feels a ſhaking cold, even under the Line, and in the coldeſt weather when there is no ſtirring of the leaſt wind: All which proves, that it is very improbable that Wind ſhould be the principle of all Natural Cold, and therefore it remains firm, that ſelf-moving Matter, or corporeal, figurative ſelf-motion, as it is the Prime and onely cauſe of all natural effects, ſo it is alſo of Cold, and Heat, and Wind, and of all the changes and alterations in Nature; which is, and hath always been my conſtant, and, in my ſimple judgment, the moſt probable and rational opinion in Natural Philoſophy.

28. *Of Thawing or diſſolving of Frozen bodies.*

AS Freezing or Congelation is cauſed by contracting, condenſing, and retentive Motions; ſo Thawing is nothing elſe, but diſſolving, dilating, and extending

extending motions; for Freezing and Thawing are two contrary actions; and as Freezing is cauſed ſeveral ways, according to the various diſpoſition of congelable bodies, and the temper of exterior cold; ſo Thawing, or a diſſolution of frozen bodies, may be occaſioned either by a ſympathetical agreement; as for example, the thawing of Ice in water; or other liquors, or by ſome exterior imitation, as by hot dilating motions. And it is to be obſerved, That as the time of freezing, ſo the time of diſſolving is according to the ſeveral natures and tempers both of the frozen bodies themſelves, and the exterior objects applied to frozen bodies, which occaſion their thawing or diſſolution: for it is not onely heat that doth cauſe Ice, or Snow, or other frozen bodies to melt quicker or ſlower, but according as the nature of the heat is, either more or leſs dilative, or more or leſs rarifying; for ſurely an exterior actual heat is more rarifying then an interior virtual heat; as we ſee in ſtrong ſpirituous liquors which are interiouſly contracting, but being made actually hot, become exteriouſly dilating: The like of many other bodies; ſo that actual heat is more diſſolving then virtual heat. And this is the reaſon why Ice and Snow will melt ſooner in ſome Countries or places then in others, and is much harder in ſome then in others; for we ſee that neither Air, Water, Earth, Minerals, nor any other ſorts of Creatures are juſt alike in all Countries or Climates: The ſame may be

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ſaid of heat and cold. Beſides, it is to be obſerved, that oftentimes a different application of one and the ſame object will occaſion different effects; as for example, if Salt be mixed with Ice, it may cauſe the contracted body of Ice to change its preſent motions into its former ſtate or figure, *viz.* into water; but being applied outwardly, or on the out-ſide of the Veſſel wherein Snow or Ice is contained, it may make it freeze harder, inſtead of diſſolving it. Alſo Ice will oftentimes break into pieces of its own accord, and without the application of any exterior object; and the reaſon, in my opinion, is, that ſome of the interior parts of the Ice, endeavouring to return to their proper and natural figure by vertue of their interior dilative motions, do break and divide ſome of the exterior parts that are contracted by the motions of Froſt, eſpecially thoſe which have not ſo great a force or power as to reſiſt them.

But concerning Thawing, ſome by their trials have found, that if frozen Eggs, Apples, and the like bodies, be thawed near the fire, they will be thereby ſpoiled; but if they be immerſed in cold water, or wrapt into Ice or Snow, the internal cold will be drawn out, as they ſuppoſe, by the external; and the frozen bodies will be harmleſly, though not ſo quickly thawed. And truly this experiment ſtands much to reaſon; for, in my opinion, when frozen bodies perceive heat or fire, the motions of their frozen parts upon the perception, endeavour to imitate the motions of heat or fire,

which being oppoſite to the motions of cold, in this ſudden and haſty change, they become irregular in ſo much as to cauſe in moſt frozen parts a diſſolution of their interior natural figure; Wherefore it is very probable, that frozen bodies will thaw more regularly in water, or being wrapt into Ice or Snow, then by heat or fire; for Thawing is a dilating action, and Water, as alſo Ice and Snow (which are nothing but congealed water) being of a dilative nature, may eaſily occaſion a thawing of the mentioned frozen parts by Sympathy, provided, the Motions of the exterior cold do not over-power the motions of the interior frozen parts; for if a frozen body ſhould be wrapt thus into Ice or Snow, and continue in an open, cold froſty air, I queſtion whether it would cauſe a thaw in the ſame body, it would preſerve the body in its frozen ſtate from diſſolving or diſuniting, rather then occaſion its thawing. But that ſuch frozen bodies, as Apples, and Eggs, *&c.* immerſed in water, will produce Ice on their out-ſides, is no wonder, by reaſon the motions of Water imitate the motions of the frozen bodies; and thoſe parts of water that are neareſt, are the firſt imitators, and become of the ſame mode. By which we may ſee, that ſome parts will cloath themſelves, others onely vail themſelves with artificial dreſſes, moſt of which dreſſes are but copies of other motions, and not original actions; It makes alſo evident, that thoſe effects are not cauſed by an ingreſs of frigorifick atomes in water, or

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other congelable bodies, but by the perceptive motions of their own parts. And what I have ſaid of Cold, the ſame may be ſpoken of heat; for it is known, that a part of a mans body being burned with fire, the burning may be cured by the heat of the fire; which, in my opinion, proceeds from a ſympathetical agreement betwixt the motions of the fire, and the motions of the burned part; for every part of a mans body hath its natural heat, which is of an intermediate temper; which heat being heightened by the burning motions of fire beyond its natural degree, cauſes a burning and ſmarting pain in the ſame part; and therefore as the fire did occaſion an immoderate heat, by an intermixture of its own parts with the parts of the fleſh; ſo a moderate heat of the fire may reduce again the natural heat of the ſame parts, and that by a ſympathetical agreement betwixt the motions of the Elemental and Animal heat; But it is to be obſerved, firſt, that the burning muſt be done by an intermixture of the fire with the parts of the body: Next, that the burning muſt be but skin deep (as we uſe to call it) that is, the burned part muſt not be totally overcome by fire, or elſe it will never be reſtored again. Neither are all burned bodies reſtored after this manner, but ſome; for one and the ſame thing will not in all bodies occaſion the like effects; as we may ſee by Fire, which being one and the ſame, will not cauſe all fuels to burn alike; and this makes true the old ſaying, *One Mans Meat is another Mans Poyſon.* The truth

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is, it cannot be otherwiſe ; for though Nature, and natural ſelf-moving Matter is but one body, and the onely cauſe of all natural effects; yet Nature being divided into infinite, corporeal, figurative ſelf-moving parts, theſe parts, as the effects of that onely cauſe, muſt needs be various; and again, proceeding from one infinite cauſe, as one matter, they are all but one thing, becauſe they are infinite parts of one Infinite body. But ſome may ſay, If Nature be but one body, and the Infinite parts are all united into that ſame body; How comes it that there is ſuch an oppoſition, ſtrife, and war betwixt the parts of Nature? I anſwer: Nature being Materiel, is compoſeable and divideable; and as Compoſition is made by a mutual agreement of parts, ſo diviſion is made by an oppoſition or ſtrife betwixt parts; which oppoſition or diviſion doth not obſtruct the Union of Nature, but, on the contrary, rather proves, that without an oppoſition of parts, there could not be a union or compoſition of ſo many ſeveral parts and creatures, nor no change or variety in Nature; for if all the parts did unanimouſly conſpire and agree in their motions, and move all but one way, there would be but one act or kind of motion in Nature ; when as an oppoſition of ſome parts, and a mutual agreement of others, is not onely the cauſe of the Miraculous variety in Nature, but it poyſes and ballances, as it were, the corporeal, figurative motions, which is the cauſe that Nature is ſteady and fixt in her

her ſelf, although her parts be in a perpetual motion.

29. *Several Queſtions reſolved concerning Cold, and Frozen Bodies*, &c.

FIrſt, I will give you my anſwer to the queſtion, which is much agitated amongſt the Learned concerning Cold, to wit, Whether it be a Poſitive quality, or a bare Privation of Heat? And my opinion is, That Cold is both a Poſitive quality, and a privation of heat: For whatſoever is a true quality of Cold, muſt needs be a privation of Heat; ſince two oppoſites cannot ſubſiſt together in one and the ſame part, at one point of time. By Privation, I mean nothing elſe, but an alteration of Natures actions in her ſeveral parts, or which is all one, a change of natural, corporeal motions; and ſo the death of Animals may be called a privation of animal life; that is, a change of the animal motions in that particular Creature, which made animal life, to ſome other kind of action which is not animal life. And in this ſenſe, both Cold and Heat, although they be poſitive qualities, or natural beings, yet they are alſo privations; that is, changes of corporeal, figurative motions, in ſeveral particular Creatures, or parts of Nature. But what ſome Learned mean by *Bare Privation*, I cannot apprehend; for there's no ſuch thing as a bare Privation, or bare Motion in Nature; but

all Motion is Corporeal, or Material; for Matter, Motion and Figure, are but one thing. Which is the reaſon, that to explain my ſelf the better when I ſpeak of Motion, I do always add the word corporeal or figurative; by which, I exclude all bare or immaterial Motion, which expreſsion is altogether againſt ſenſe and reaſon.

The *ſecond* Queſtion is, Whether Winds have the power to change the Exterior temper of the Air? To which, I anſwer: That Winds will not onely occaſion the Air to be either hot or cold, according to their own temper, but alſo Animals and Vegetables, and other ſorts of Creatures; for the ſenſitive, corporeal Motions in ſeveral kinds of Creatures, do often imitate and figure out the Motions of exterior objects, ſome more, ſome leſs; ſome regularly, and ſome irregularly, and ſome not at all; according to the nature of their own perceptions. By which we may obſerve, that the Agent, which is the external object, has onely an occaſional power; and the Patient, which is the ſentient, works chiefly the effect by vertue of the perceptive, figurative motions in its own ſenſitive organs or parts.

Queſt. 3. Why thoſe Winds that come from cold Regions, are moſt commonly cold, and thoſe that come from hot Regions are for the moſt part hot? I anſwer; The reaſon is, That thoſe Winds have more conſtantly patterned out the motions of cold or heat

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in thoſe parts from which they either ſeparated themſelves, or which they have met withal. But it may be queſtioned, Whether all cold and hot winds do bring their heat and cold along with them out of ſuch hot and cold Countries? And I am of opinion they do not; but that they proceed from an imitation of the neareſt parts, which take patterns from other parts, and theſe again from the remoter parts; ſo that they are but patterns of other patterns, and copies of other copies.

Queſt. 4. Why Fire in ſome cold Regions will hardly kindle, or at leaſt not burn freely? I anſwer; This is no more to be wondered at, then that ſome men do die with cold; for cold being contrary to fire, if it have a predominate power, it will without doubt put out the fire; not that the cold corporeal motions do deſtroy fire by their actual power over it, but that fire deſtroys it ſelf by an imitation of the motions of cold; ſo that cold is onely an occaſional cauſe of the fires deſtruction, or at leaſt of the alteration of its motions, and the diminution of its ſtrength. But ſome might ask, What makes or cauſes this imitation in ſeveral ſorts of Cretures? I anſwer, The wiſdom of Nature, which orders her corporeal actions to be always in a mean, ſo that one extream (as one may call it) does countervail another. But then you'l ſay, There would always be a right and mean temper in all things. I anſwer: So there is in the whole, that is, in Infinite Nature, although not in every particular; for Natures Wiſdom orders

orders her particulars to the beſt of the whole; and although particulars do oppoſe each other, yet all oppoſition tends to the conſervation of a general peace and unity in the whole. But to return to Fire; ſince Air is the proper matter of reſpiration for fire, extream colds and froſts, either of air or vapour, are as unfit for the reſpiration of fire as water is; which if it do not kill it quite, yet it will at leaſt make it ſick, pale and faint; but if water be rarified to ſuch a degree, that it becomes thin vapour, then it is as proper for its reſpiration, as air. Thus we ſee, although fire hath fuel, which is its food, yet no food can keep it alive without breath or reſpiration: The like may be ſaid of ſome other Creatures.

*Qu.*5. Whether Wood be apt to freeze? My Anſwer is, That I believe that the moiſt part of Wood, which is ſap, may freeze as hard as Water, but the ſolid parts cannot do ſo; for the cracking noiſe of Wood is no proof of its being frozen, becauſe Wainſcot will make ſuch a noiſe in Summer, as well as in Winter. And it is to be obſerved, that ſome bodies will be apter to freeze in a weak, then in a hard froſt, according to their own diſpoſitions; which is as much to be conſidered, as the object of cold or froſt it ſelf; for ſome bodies do more, and ſome leſs imitate the motions of ſome objects, and ſome not at all: and thus we ſee that ſolid bodies do onely imitate the contractive motions of cold, but not the dilative motions of moiſture, which

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is the cauſe they break in a hard froſt, like as a ſtring, which being tied too hard, will fly aſunder; and as they imitate Cold, ſo they do alſo imitate Thaw.

Queſt. 6. Whether Water be fluid in its nature, or but occaſionally by the agitation of the air? I anſwer: That Water is fluid in its own nature, needs no proof, but 'tis known enough by the force of its dilating motions; for Water, when it gets but liberty, it overflows all, and dilates everywhere; which proves it is not air that makes it fluid, but it is ſo in its own nature.

Queſt. 7. What produces thoſe great Precipices and Mountains of Ice which are found in the Sea, and other great waters? I anſwer: That Snow, as alſo thick Fogs and Miſts, which are nothing but rarified water, falling upon the Ice, make its out-ſide thicker, and many great ſhelves and broken pieces of Ice joyning together, produce ſuch Precipices and Mountains as mentioned.

Queſt. 8. Whether Fiſhes can live in frozen Water? I anſwer: If there be as much water left unfrozen, as will ſerve them for reſpiration, they may live; for it is well known, that Water is the chief matter of reſpiration for Fiſh, and not Air; for Fiſh being out of water, cannot live long, but whilſt they live, they gasp and gape for water: I mean ſuch kinds of Fiſh which do live altogether in Water, and not

ſuch Creatures as are of a mixt kind, and live in water as well as by land, which the Learned call Amphibious Creatures; as Otters, and the like, which may live in the air, as well as in water: Thoſe Fiſh, I ſay, if the water be thorowly frozen, or if but the ſurface of water be quite frozen over to a pretty depth, will often die, by reaſon the water that remains unfrozen, by the contraction of Ice has altered for that time its dilative motions, to retentive motions; and like as men are ſmothered in a cloſe air, ſo Fiſh in cloſe water, that is, in water which is quite covered and incloſed with Ice: but at ſome men have not ſo nice and tender natures as others, and ſome have larger organs for reſpiration then others, and ſome are more accuſtomed to ſome ſorts of air then others, which may cauſe them to endure longer, or reſpire more freely then others; ſo ſome Fiſhes do live longer in ſuch cloſe waters, then others; and ſome may be like Men that are froſt-bitten, which may chance to live even in thoſe waters that are quite thorowly frozen, as Experimenters relate; but yet I cannot believe, that the water, in which Fiſhes have been obſerved to live, can be ſo thorowly frozen to ſolid Ice, that it ſhould not leave ſome liquidity or wetneſs in it, although not perceptible by our ſight, by which thoſe Fiſhes were preſerved alive: However, it is more probable for Fiſh to live in Ice, then for other Creatures, becauſe the Principle of Ice is Water, which is the matter

matter of the Fiſhes reſpiration, which keeps them alive.

Queſt. 9. Whether in decoctions of Herbs, when congealed or frozen into Ice, the figures of the Herbs do appear in the Ice? This is affirmed for Truth by many Learned; and though I do not deny, but that ſuch liquors in freezing may have ſome reſemblance of their ſolid parts; yet I do not believe it to be univerſal; for if the blood of an animal ſhould be congealed into Ice, I doubt it would hardly repreſent the figure of an animal. Indeed there's much difference between the exterior figures of Creatures, and their interior natures, which is evident even in frozen water, whoſe exterior Icy figures are numerous, when as their interior nature is but water; and there may alſo ſeveral changes and alterations of exterior figures be made by Art, when their interior nature is but one and the ſame.

Queſt. 10. Whether Cold doth preſerve Bodies from Corruption? I anſwer: That, in my opinion, it may be very probable: For Corruption or Putrefaction is nothing but irregular diſſolving motions; when as Freezing or Congelation is made by regular contracting and condenſing motions; and ſo long as theſe motions of Freezing are in force, it is impoſsible the motions that make Corruption ſhould work their effect. But that ſuch bodies as have been thorowly frozen, after being thawed, are moſt commonly ſpoiled; the reaſon is, that the freezing or congealing motions, being not natural to thoſe bodies, have cauſed ſuch a thorow-

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alteration of the natural motions of their parts, as a hundred to one but they will never move regularly and orderly again afterward; but on the contrary, their interior motions do quite and abſolutelely change, by which the figure is totally altered from its former nature: but if a ſolid body be not throughly frozen, it may be reduced to a perfect regularity again; for thoſe natural motions that are not altered, may occaſion the reſt to act as formerly, to the preſervation of that figure.

30. *Of Contraction and Dilation.*

THere have been, and are ſtill great diſputes amongſt the Learned concerning Contraction and Extenſion of bodies; but if I were to decide their controverſie, I would ask firſt, Whether they did all agree in one principle? that is, whether their principle was purely natural, and not mixt with divine or ſupernatural things; for if they did not well apprehend one anothers meaning, or argued upon different principles, it would be but a folly to diſpute, becauſe it would be impoſſible for them to agree. But concerning Contraction and Dilation, my opinion is, That there can be no Contraction nor Extenſion of a ſingle part, by reaſon there is no ſuch thing as a ſingle or individeable part in Nature; for even that which the learned call an atome, although they make it a ſingle body, yet being material or corporeal, it muſt needs be divideable: Where-

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fore all Contraction and Dilation conſiſts of parts as much as body doth, and there is no body that is not contractive and dilative, as well as it is divideable and compoſeable; for parts are, as it were, the effects of a body, by reaſon there is no body without parts; and contraction and extenſion are the effects of parts, and magnitude and place are the effects of contraction and extenſion; and all theſe are the effects of corporeal figurative ſelf-motion, which I have more fully declared in ſeveral places of my Philoſophical Works.

But ſome may ſay, It is impoſsible that a body can make it ſelf bigger or leſs then by Nature it is? My anſwer is, I do not conceive what is meant by being little or great by Nature; for Nature is in a perpetual motion, and ſo are her parts, which do work, intermix, join, divide and move according as Nature pleaſes without any reſt or intermiſsion. Now if there be ſuch changes of parts and motions, it is impoſsible that there can be any conſtant figure in Nature; I mean, ſo as not to have its changes of motions as well as the reſt, although they be not all after the ſame manner; And if there can be no conſtant figure in Nature, there can neither be a conſtant littleneſs or greatneſs, nor a conſtant rarity or denſity, but all parts of Nature muſt change according to their motions; for as parts divide and compoſe, ſo are their figures; and ſince there are contracting and dilating motions, as well as there are of other ſorts, there are alſo contracting and dilating

parts; and if there be contracting and dilating parts, then their magnitude changes accordingly; for magnitude doth not barely conſiſt in quantity, but in the extenſion of the parts of the body, and as the magnitude of a body is, ſo is place; ſo that place is larger, or leſs, according as the body contracts or dilates; for it is well to be obſerved, that it is not the interior figure of any part or Creature of Nature that alters by contraction or dilation; for example, Gold or Quickſilver is not changed from being Gold or Quickſilver when it is rarified, but onely that figure puts it ſelf into ſeveral poſtures. Which proves, that the extenſion of a body is not made by an addition or intermixture of forraign parts, as compoſition; nor contraction, by a diminution of its own parts, as diviſion; for dilation and compoſition, as alſo diviſion and contraction, are different actions; the dilation of a body is an extenſion of its own parts, but compoſition is an addition of forreign parts; and contraction, although it makes the body leſs in magnitude, yet it loſes nothing of its own parts: The truth is, as diviſion and compoſition are natural corporeal motions, ſo are contraction and dilation; and as both compoſition and diviſion belong to parts, ſo do contraction and dilation; for there can be no contraction or dilation of a ſingle part.

31. *Of the Parts of Nature, and of Atomes.*

ALthough I am of opinion, that Nature is a ſelf-moving, and conſequently a ſelf-living and ſelf-knowing infinite body, divideable into infinite parts; yet I do not mean that theſe parts are Atomes; for there can be no Atome, that is, an individeable body in Nature, becauſe whatſoever has body, or is material, has quantity, and what has quantity is divideable. But ſome may ſay, if a part be finite, it cannot be divideable into Infinite. To which I anſwer, that there is no ſuch thing as one finite ſingle part in Nature; for when I ſpeak of the parts of Nature, I do not underſtand, that thoſe parts are like grains of Corn, or ſand in one heap, all of one figure or magnitude, and ſeparable from each other; but I conceive Nature to be an Infinite body, bulk or magnitude, which by its own ſelf-motion is divided into infinite parts, not ſingle or individable parts, but parts of one continued body, onely diſcernable from each other by their proper figures, cauſed by the changes of particular motions; for it is well to be obſerved, firſt, that Nature is corporeal, and therefore divideable: Next, That Nature is ſelf-moving, and therefore never at reſt; I do not mean exteriouſly moving; for Nature being infinite, is all within it ſelf, and has nothing without or beyond it, becauſe it is without limits or bounds; but interiouſly,

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ſo that all the motions that are in Nature are within her ſelf, and being various and infinite in their changes, they divide the ſubſtance or body of Nature into infinite parts; for the parts of Nature, and changes of Motion are but one thing; for were there no Motion, there would be no change of figures: 'Tis true, Matter in its own nature would be divideable, becauſe whereſoever is body, there are parts; but if it had no motion, it would not have ſuch various changes of figures as it hath; wherefore it is well to be conſidered, that ſelf-motion is throughout all the body of Nature, and that no part or figure, how ſmall ſoever, can be without ſelf-motion; and according as the motions are, ſo are the parts; for infinite changes of motions make infinite parts; nay, what we call one finite part, may have infinite changes, becauſe it may be divided and compoſed infinite ways. By which it is evident, firſt, that no certain quantity or figure can be aſsigned to the parts of Nature, as I ſaid before of the grains of corn or ſand; for infinite changes of motions produce infinite varieties of figures; and all the degrees of denſity, rarity, levity, gravity, ſlowneſs, quickneſs; nay, all the effects that are in Nature: Next, that it is impoſsible to have ſingle parts in Nature, that is, parts which are individeable in themſelves, as Atomes; and may ſubſiſt ſingle, or by themſelves, preciſed or ſeparated from all other parts; for although there are perfect and whole figures in Nature, yet are they nothing elſe but parts

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of Nature, which conſiſt of a compoſition of other parts, and their figures make them diſcernable from other parts or figures of Nature. For example: an Eye, although it be compoſed of parts, and has a whole and perfect figure, yet it is but a part of the Head, and could not ſubſiſt without it: Alſo the Head, although it has a whole and perfect figure, yet 'tis a part of the Body, and could not ſubſiſt without it. The ſame may be ſaid of all other particular and perfect figures. As for example: an Animal, though it be a whole and perfect figure, yet it is but a part of Earth, and ſome other Elements, and parts of Nature, and could not ſubſiſt without them; nay, for any thing we know to the contrary, the Elements cannot ſubſiſt without other Creatures: All which proves, that there are no ſingle Parts, nor *Vacuum*, nor no Compoſition of looſe Atomes in Nature; for if ſuch a whole and perfect figure ſhould be divided into millions of other parts and figures, yet it is impoſsible to divide it into ſingle parts, by reaſon there is as much compoſition, as there is diviſion in Nature; and as ſoon as parts are divided from ſuch or ſuch parts, at that inſtant of time, and by the ſame act of diviſion they are joyned to other parts; and all this becauſe Nature is a body of a continued infiniteneſs, without any holes or vacuities: Nay, were it poſsible that there could be a ſingle part, that is, a part ſeparated from all the reſt; yet being a part of Nature, it muſt conſiſt of the ſame ſubſtance as Na-

ture her ſelf; but Nature is an Infinite compoſition of rational, ſenſitive and inanimate matter; which although they do conſtitute but one body becauſe of their cloſe and inſeparable conjunction and commixture; nevertheleſs they are ſeveral parts (for one part is not another part) and therefore every part or particle of Nature conſiſting of the ſame commixture, cannot be ſingle or individable. Thus it remains firm, that ſelf-motion is the onely cauſe of the various parts and changes of figures; and that when parts move or ſeparate themſelves from parts, they move and joyn to other parts at the ſame point of time; I do not mean that parts do drive or preſs upon each other, for thoſe are forced and conſtraint actions, when as natural ſelf-motions are free and voluntary; and although there are preſſures and re-actions in Nature, yet they are not univerſal actions: Neither is there any ſuch thing as a ſtoppage in the actions of Nature, nor do parts move through Empty ſpaces; but as ſome parts joyn, ſo others divide by the ſame act; for although ſome parts can quit ſuch or ſuch parts, yet they cannot quit all parts; for example, a man goes a hundred miles, he leaves or quits thoſe parts from whence he removed firſt; but as ſoon as he removes from ſuch parts, he joyns to other parts, were his motion no more then a hairs breadth; ſo that all his journey is nothing elſe but a diviſion and compoſition of parts, whereſoever he goes by water, or by land; for it is impoſsible for him

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to quit parts in general, although it be in his choice to quit ſuch or ſuch particular parts, and to join to what parts he will.

When I ſpeak of Motion, I deſire to be underſtood, that I do not mean any other but corporeal motion; for there is no other motion in Nature; ſo that Generation, Diſſolution, Alteration, Augmentation, Diminution, Transformation; nay, all the actions of Senſe and Reaſon, both interior, and exterior, and what motions ſoever in Nature are corporeal, although they are not all perceptible by our exterior ſenſes; for our ſenſes are too groſs to perceive all the curious and various actions of Nature, and it would be but a folly to deny what our ſenſes cannot perceive; for although Senſe and Reaſon are the ſame in all Creatures and parts of Nature, not having any degrees in themſelves, no more then ſelf-knowledg hath; for ſelf-knowledg can but be ſelf-knowledg, and ſenſe and reaſon can but be ſenſe and reaſon; yet they do not work in all parts of Nature alike, but according as they are compoſed: and therefore it is impoſsible for any humane eye to ſee the exterior motions of all Creatures, except they be of ſome groſſer bodies; For who can ſee the motion of the Air, and the like? Nay, I believe not that all exterior motions of groſſer bodies can be perceived by our ſight, much leſs their interior actions; and by this I exclude Reſt: for if Matter, or corporeal Nature be in a perpetual motion, there

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can be no reſt in Nature, but what others call reſt, is nothing elſe but retentive motions, which retentive motions, are as active as diſperſing motions; for Mr. *Des Cartes* ſays well, that it requires as much action or force to ſtay a Ship, as to ſet it a float; and there is as much action required in keeping parts together, as in diſperſing them. Beſides, interior motions are as active as ſome exterior; nay, ſome more; and I believe, if there were a World of Gold, whoſe parts are cloſe and denſe, it would be as active interiouſly, as a world of air, which is fluid and rare, would be active exteriouſly. But ſome may ſay, How is it poſsible that there can be a motion of bodies without an empty ſpace; for one body cannot move in another body? I anſwer: Space is change of diviſion, as Place is change of magnitude; but diviſion and magnitude belong to body; therefore ſpace and place cannot be without body, but whereſoever is body, there is place alſo: Neither can a body leave a place behind it; ſo that the diſtinction of interior and exterior place is needleſs, becauſe no body can have two places, but place and body are but one thing; and whenſoever the body changes, its place changes alſo. But ſome do not conſider that there are degrees of Matter; for Natures body doth not conſiſt of one degree, as to be all hard or denſe like a ſtone, but as there are infinite changes of Motion, ſo there are in Nature infinite degrees of denſity, rarity, groſsneſs, purity, hardneſs, ſoftneſs, *&c.* all cauſed by

by ſelf-motion; which hard, groſs, rare, fluid, denſe, ſubtil, and many other ſorts of bodies, in their ſeveral degrees, may more eaſily move, divide and join, from and with each other, being in a continued body, then if they had a *Vacuum* to move in; for were there a *Vacuum*, there would be no ſucceſsive motions, nor no degrees of ſwiftneſs and ſlowneſs, but all Motion would be done in an inſtant. The truth is, there would be ſuch diſtances of ſeveral gaps and holes, that Parts would never join if once divided; in ſo much as a piece of the world would become a ſingle particular World, not joyning to any part beſides it ſelf; which would make a horrid confuſion in Nature contrary to all ſenſe and reaſon. Wherefore the opinion of *Vacuum* is, in my judgment, as abſurd as the opinion of ſenſeleſs and irrational Atomes, moving by chance; for it is more probable that atomes ſhould have life and knowledg to move regularly, then that they ſhould move regularly and wiſely by chance, and without life and knowledg; for there can be no regular motion without knowledg, ſenſe and reaſon; and therefore thoſe that are for Atomes, had beſt to believe them to be ſelf-moving, living and knowing bodies, or elſe their opinion is very irrational. But the opinion of Atomes, is fitter for a Poetical fancy, then for ſerious Philoſophy; and this is the reaſon that I have waved it in my Philoſophical Works: for if there can be no ſingle parts, there cannot be Atomes

in Nature, or elſe Nature would be like a Beggars coat full of lice; Neither would ſhe be able to rule thoſe wandering and ſtragling atomes, becauſe they are not parts of her body, but each is a ſingle body by it ſelf, having no dependance upon each other; Wherefore if there ſhould be a compoſition of Atomes, it would not be a body made of parts, but of ſo many whole and intire ſingle bodies meeting together as a ſwarm of Bees: The truth is, every Atome being ſingle, muſt be an abſolute body by it ſelf, and have an abſolute power and knowledg; by which it would become a kind of a Deity; and the concourſe of them would rather cauſe a confuſion, then a conformity in Nature, becauſe all Atomes, being abſolute, they would all be Governours, but none would be governed.

Thus I have declared my opinion concerning the parts of Nature, as alſo *Vacuum*, and Atomes; to wit, That it is impoſsible there can be any ſuch things in Nature. I will conclude after I have given my anſwer to theſe two following Queſtions.

Firſt, It may be asked, Whether the Parts of a Compoſed figure do continue in ſuch a Compoſition until the whole figure be diſſolved? I anſwer, My opinion is, that in ſome compoſitions they do continue, at leaſt ſome longer then others; but although ſome parts of a figure do disjoin from each other, and join with others; yet the ſtructure of the Creature may nevertheleſs continue. Neither is it neceſſary, that thoſe which

which begin a buiding, muſt needs ſtay to the end or perfection of it, for ſome may begin, others may work on, and others may finiſh it; alſo ſome may repair, and ſome may ruine; and it is well to be obſerved, that the compoſitions of all Creatures are not alike, nor do they continue or diſſolve all alike, and at the ſame time.

Secondly, It may be queſtioned, Whether there can be an infinite diſtance between two or more parts? And my anſwer is, That diſtance properly doth not belong to infinite, but onely to finite pars; for diſtance is a certain meaſure between parts and parts, and whereſoever is a meaſure, there muſt be two extreams; but there are no extreams nor ends in infinite, and therefore there can be no infinite diſtance between parts. Indeed, it is a meer contradiction, and *non*-ſenſe to ſay, *Infinit between parts*, by reaſon the word *Between*, implies a finiteneſs, as between ſuch a part, and ſuch a part. But you will ſay, Becauſe Nature is an infinite body, it muſt have an infinite meaſure; for whereſoever is body, there is magnitude and figure; and whereſoever is magnitude and figure, there is meaſure. I anſwer; 'Tis true, body, magnitude and figure, are all but one thing; and according as the body is, ſo is its magnitude and figure; but the body of Nature being infinite, its magnitude and figure muſt alſo be infinite. But miſtake me not: I do not mean a circumſcribed and perfect exterior magnitude, by reaſon there's nothing exterior

terior in reſpect to Infinite, but in relation to its infinite parts. The truth is, Men do often miſtake in adſcribing to Infinite that which properly belongs to particulars; or at leaſt they conſider the attributes of an infinite and a finite body, after one and the ſame manner; and no wonder, becauſe a finite capacity cannot comprehend what infinite is; but although we cannot poſitively know what infinite is, yet we may gueſs at it by its oppoſite, that is, by Finite; for infinite is that which has no terms, bounds or limits; and therefore it cannot be circumſcribed; and if it cannot be circumſcribed as a finite body, it cannot have an exterior magnitude and figure as a finite body, and conſequently no meaſure. Nevertheleſs, it is no contradiction to ſay, it has an Infinite magnitude and figure; for although Infinite Nature cannot have any thing without or beyond it ſelf, yet it may have magnitude and figure within it ſelf, becauſe it is a body, and by this the magnitude and figure of infinite Nature is diſtinguiſhed from the magnitude and figure of its finite parts; for theſe have each their exterior and circumſcribed figure, which Nature has not. And as for Meaſure, it is onely an effect of a finite magnitude, and belongs to finite parts that have certain diſtances from each other. 'Tis true, one might in a certain manner ſay, An infinite diſtance; as for example, if there be an infinite Line which has no ends, one might call the infinite extenſion of that line an infinite diſtance; but this is an improper

proper expreſsion, and it is better to keep the term of an infinite extenſion, then call it an infinite diſtance; for as I ſaid before, diſtance is meaſure, and properly belongs to parts: Nay, if it were poſsible that there could be an infinite diſtance of parts in Nature, yet the perpetual changes of Motions, by which parts remove, and join from and to parts, would not allow any ſuch thing in Nature; for the parts of Nature are always in action, working, intermixing, compoſing, dividing perpetually; ſo as it would be impoſsible for them to keep certain diſtances.

But to conclude this Diſcourſe, I deſire it may be obſerved,

1. That whatſoever is body, were it an Atome, muſt have parts; ſo that body cannot be without parts.

2. That there is no ſuch thing as reſt or ſtoppage in Infinite Matter; but there is ſelf-motion in all parts of Nature, although they are not all exteriouſly, locally moving to our perception; for reaſon muſt not deny what our ſenſes cannot comprehend: although a piece of Wood or Metal has no exterior progreſsive motion, ſuch as is found in Animals; nevertheleſs, it is not without Motion; for it is ſubject to Generation and Diſſolution, which certainly are natural corporeal motions, beſides many others; the truth is, the harder, denſer, and firmer bodies are, the ſtronger are their motions; for it requires more ſtrength to keep and

hold parts together, then to diſſolve and ſeparate them.

3. That without motion, parts could not alter their figures, neither would there be any variety in infinite Nature.

4. If there were any ſuch thing as Atomes, and *Vacuum*, there would be no conformity, nor uniformity in Nature.

Laſtly, As there is a perpetual ſelf-motion in Nature, and all her parts, ſo it is impoſsible that there can be perfect meaſures, conſtant figures, or ſingle parts in Nature.

32. *Of the Celeſtial Parts of this World; and whether they be alterable?*

IT may be queſtioned, Whether the celeſtial parts of the world never alter or change by their corporeal figurative motions, but remain conſtantly the ſame without any change or alteration? I anſwer: Concerning the general and particular kinds or ſorts of Creatures of this world, humane ſenſe and reaſon doth obſerve, that they do not change, but are continued by a perpetual ſupply and ſucceſsion of Particulars without any general alteration or diſſolution; but as for the ſingulars or particulars of thoſe kinds and ſorts of Creatures, it is moſt certain, that they are ſubject to perpetual alterations, generations and diſſolutions; for example,

ample, humane ſenſe and reaſon perceives, that the Parts of the Earth do undergo continual alterations; ſome do change into Minerals, ſome into Vegetables, ſome into Animals, *&c.* and theſe change again into ſeveral other figures, and alſo ſome into Earth again, and the Elements are changed one into another; when as yet the Globe of the Earth it ſelf remains the ſame without any general alteration or diſſolution; neither is there any want or decay of general kinds of Creatures, but onely a change of their particulars; And though our perception is but finite, and muſt contain it ſelf within its own compaſs or bounds, ſo that it cannot judg of all particulars that are in Nature: Nevertheleſs, I ſee no reaſon, why the Celeſtial parts of the World ſhould not be ſubject to alteration, as well as thoſe of the Terreſtrial Globe; for if Nature be full of ſelf-motion, no particular can be at reſt, or without action; but the chief actions of Nature are Compoſition and Diviſion, and changes of Parts: Wherefore, although to our humane perception, the Stars and Planets do not change from their general nature, as from being ſuch or ſuch compoſed figures, but appear the ſame to us, without any general or remarkable change of their exterior figures; yet we cannot certainly affirm, that the parts thereof be either moveleſs or unalterable, they being too remote from our perception, to diſcern all their particular motions: For put the caſe, the Moon, or any other of the Planets, were inhabited by

by animal Creatures, which could ſee as much of this terreſtrial Globe, as we ſee of the Moon, although they would perceive perhaps the progreſſive motion of the whole figure of this terreſtrial Globe, in the ſame manner as we do perceive the motion of the Moon, yet they would never be able to diſcern the particular parts thereof, *viz.* Trees, Animals, Stones, Water, Earth, *&c.* much leſs their particular changes and alterations, generations and diſſolutions. In the like manner do the Celeſtial Orbs appear to us; for none that inhabit this Globe will ever be able to diſcern the particular parts of which the Globe of the Moon conſiſts, much leſs their changes and motions. Indeed, it is with the Celeſtial Orbs, as it is with other compoſed parts or figures of Nature, which have their interior, as well as exterior; general, as well as particular motions; for it is impoſsible, that Nature, conſiſting of infinite different parts, ſhould have but one kind of motion; and therefore as a Man, or any other animal, has firſt his exterior motions or actions, which belong to his whole compoſed figure, next his Internal figurative motions by which he grows, decays, and diſſolves, *&c.* Thirdly, As every ſeveral part and particle of his body has its interior and exterior actions; ſo it may be ſaid of the Stars and Planets, which are no more then other parts of Nature, as being compoſed of the ſame Matter which all the reſt conſiſts of, and partaking of the ſame ſelf-motion; for although our ſight cannot diſcern

diſcern more then their progreſsive, and ſhining or twinkling motion; nevertheleſs, they being parts of Nature, muſt of neceſsity have their interior and exterior, particular and general motions; ſo that the parts of their bodies may change as much as the parts of this Globe, the figure of the whole remaining ſtill the ſame; for as I ſaid before, they being too far from our perception, their particular motions cannot be obſerved; nay, were we able to perceive the exterior actions of their parts, yet their interior motions are no ways perceptible by humane ſight; we may obſerve the effects of ſome interior motions of natural Creatures; for example, of Man, how he changes from infancy to youth, from youth to old age, *&c.* but how theſe actions are performed inwardly, no Microſcope is able to give us a true information thereof. Nevertheleſs, Mankind is as laſting, as the Sun, Moon and Stars; nay, not onely Mankind, but alſo ſeveral other kinds and ſpecies of Creatures, as Minerals, Vegetables, Elements, and the like; for though particulars change, yet the ſpecies do not; neither can the ſpecies be impaired by the changes of their particulars; for example, the Sea is no leſs ſalt, for all there is ſo much ſalt extracted out of ſalt-water, beſides that ſo many freſh Rivers and Springs do mingle and intermix with it; Neither doth the Earth ſeem leſs for all the productions of Vegetables, Minerals and Animals, which derive their birth and origine from thence: Nor doth the race of Mankind

ſeem either more or leſs now then it was in former ages; for every ſpecies of Creatures is preſerved by a continued ſucceſsion or ſupply of particulars; ſo that when ſome die or diſſolve from being ſuch natural figures, others are generated and ſupply the want of them. And thus it is with all parts of Nature, both what we call Celeſtial and Terreſtrial; nor can it be otherwiſe, ſince Nature is ſelf-moving, and all her parts are perpetually active.

33. *Of the ſubſtance of the Sun, and of Fire.*

THere are divers opinions concerning the matter or ſubſtance of the Sun; ſome imagine the Sun to be a ſolid body ſet on fire; others that it is a fluid body of fire, and others again, that it is onely a body of Light, and not of fire; ſo as I know not which opinion to adhere to: but yet I do rather believe the Sun to be a ſolid, then a fluid body; by reaſon fluid bodies are more inconſtant in their motions then ſolid bodies; witneſs Lightning, which is a fluid fire, and flaſhes out through the divided clouds, with ſuch a force as water that is pumpt; and being extended beyond the degree of flame, alters to ſomething elſe that is beyond our humane perception. Indeed, it is of the nature of Air, or elſe Air inflamed; and as ſome ſorts of Air are more rare, ſubtil and ſearching then others, ſo are ſome ſorts of Lightning, as 'tis known by experience:

or

or it is like ſeveral ſorts of flame, that have ſeveral ſorts of fuel to feed on; as for example, the flame of Oyl, the flame of Wood, the flame of *Aqua-vitæ*, the flame of Gums, and the like; all which are very different, not onely in their ſeveral tempers and degrees of heat, but alſo in their ſeveral manners of burning or flaming; for the flame of *Aqua-vitæ* is far thinner and blewer, then the flame of Wax, Wood, Tallow, or the like; in ſo much, that there is as much difference between them, as there is between the Azure Skie, and a white Cloud; which ſhews, that the flame of ſpirituous bodies is more airy and rare then the flame of others: For Flame is onely the rare and airy part of fire, and there is a natural body of Fire, as well as of Air, Earth and Water; and as there are ſeveral ſorts of Earth, Water and Air, ſo there are alſo ſeveral ſorts of Fire; and as there are ſprings of Water, and ſprings of Air, ſo there may alſo be ſprings of Fire and Flame. But to return to the Sun; though I am not able certainly to determine of what ſubſtance it is, yet to our perception it appears not to be a fluid, but a ſolid body, by reaſon it keeps conſtantly the ſame exterior figure, and never appears either ebbing or flowing, or flaſhing, as lightning is; nor does the whole figure of its body diſſolve and change into another figure; nevertheleſs, it being a natural creature, and conſiſting of ſelf-moving parts, there is no queſtion but its parts are ſubject to continual changes and alterations, although not perceptible by our

our ſight, by reaſon of its diſtance, and the weakneſs of our organs; for although this Terreſtrial Globe, which we inhabit, in its outward figure, nay, in its interior nature remains ſtill the ſame; yet its parts do continually change by perpetual compoſitions and diſſolutions, as is evident, and needs no proof. The ſame may be ſaid of the Sun, Moon, Stars and Planets; which are like a certain kind or ſpecies of Creatures; as for example, Animal or Man-kind; which ſpecies do always laſt, although their particulars are ſubject to perpetual productions and diſſolutions. And thus it is with all compoſed figures or parts of Nature, whoſe chief action is Reſpiration (if I may ſo call it) that is, compoſition and diviſion of parts, cauſed by the ſelf-moving power of Nature.

34. *Of Teleſcopes.*

MAny Ingenious and Induſtrious Artiſts take much labour and pains in ſtudying the natures and figures of Celeſtial objects, and endeavour to diſcover the cauſes of their appearances by Teleſcopes, and ſuch like Optick Inſtruments; but if Art be not able to inform us truly of the natures of thoſe Creatures that are near us, How may it delude us in the ſearch and enquiry we make of thoſe things that are ſo far from us? We ſee how Multiplying-glaſſes do preſent numerous pictures of one object, which he that has not the

the experience of the deceitfulneſs of ſuch Glaſſes, would really think to be ſo many objects. The like deceits may be in other optick Inſtruments for ought man knows. 'Tis true, we may perhaps through a Teleſcope ſee a Steeple a matter of 20 or 30 miles off; but the ſame can a natural Eye do, if it be not defective, nor the medium obſtructed, without the help of any ſuch Inſtrument; eſpecially if one ſtand upon a high place: But put the caſe, a man ſhould be upon the *Alps*, he would hardly ſee the City of *Paris* from thence, although he looked through a Teleſcope never ſo perfect, and had no obſtruction to hinder his ſight: and truly the Stars and Planets are far more diſtant from us then *Paris* from the *Alps*. It is well known, that the ſenſe of ſight requires a certain proportion of diſtance betwixt the Eye and the Object; which being exceeded, it cannot perform its office; for if the object be either too near, or too far off, the ſight cannot diſcern it: and as I have made mention in my Philoſophical Letters of the nature of thoſe Guns, that according to the proportion of the length of the barrel, ſhoot either further or ſhorter; for the Barrel muſt have its proportioned length; which being exceeded, the Gun will ſhoot ſo much ſhorter as the barrel is made longer; ſo may Proſpective-glaſſes perhaps direct the ſenſe of ſeeing within a certain compaſs of diſtance; which diſtance, ſurely the Stars and Planets do far exceed; I mean ſo, as to diſcern their

figures as we do of other objects that are near us; for concerning their exterior progreſsive motions, we may obſerve them with our natural eyes as well as through Artificial Tubes: We can ſee the Suns riſing and ſetting, and the progreſsive motion of the Moon, and other Planets; but yet we cannot ſee their natural figures, what they are, nor what makes them move; for we cannot perceive progreſsive local Motion otherwiſe, then by change of diſtance, that is, by compoſition and diviſion of Parts, which is commonly, (though improperly) called change of Place, and no glaſſes or tubes can do more. Some affirm, they have diſcovered many new Stars, never ſeen before, by the help of Teleſcopes; but whether this be true, or not, or whether it be onely a deluſion of the glaſſes, I will not diſpute; for I having no skill, neither in the art of Opticks, nor in Aſtronomy, may chance to err, and therefore I will not eagerly affirm what I do not certainly know; I onely endeavour to deliver my judgment as reaſon directs me, and not as ſenſe informs, or rather deludes me; and I choſe rather to follow the guidance of regular Reaſon, then of deluding Art.

35. *Of Knowledg and Perception in General.*

SInce Natural Knowledg and Perception is the Ground and Principle, not onely of Philoſophy both Speculative and Experimental, but of all other Arts

Arts and Sciences, nay, of all the Infinite particular actions of Nature; I thought it not amiſs to joyn to the end of this part a full declaration of my opinion concerning that ſubject.

Firſt, It is to be obſerved, That Matter, Self-motion and Self-knowledg, are inſeparable from each other, and make Nature, one Material, ſelf-moving, and ſelf-knowing Body.

2. Nature being Material, is dividable into parts; and being infinite in quantity or bulk, her parts are infinite in number.

3. No part can ſubſiſt ſingly, or by it ſelf, preciſed from the reſt; but they are all parts of one infinite body; for though ſuch parts may be ſeparated from ſuch parts, and joined to other parts, and by this means may undergo infinite changes by infinite compoſitions and diviſions; yet no part can be ſeparated from the body of Nature.

4. And hence it follows, That the parts of Nature are nothing elſe but the particular changes of particular figures, made by ſelf-motion.

5. As there can be no annihilation; ſo there can neither be a new Creation of the leaſt part or particle of Nature, or elſe Nature would not be infinite.

6. Nature is purely corporeal or material, and there is nothing that belongs to, or is a part of Nature, which is not corporeal; ſo that natural and material, or corporeal, are one and the ſame; and therefore ſpiritual beings,

beings, non-beings, mixt beings, and whatſoever diſtinctions the Learned do make, are no ways belonging to Nature: Neither is there any ſuch thing as an Incorporeal motion; for all actions of Nature are corporeal, being natural; and there can no abſtraction be made of Motion or Figure, from Matter or Body, but they are inſeparably one thing.

7. As Infinite Matter is divided into Infinite parts, ſo Infinite knowledg is divided into Infinite particular knowledges, and Infinite ſelf-motion into Infinite particular ſelf-actions.

8. There is no other difference between ſelf-knowledg, and particular knowledges, then betwixt ſelf-motion, and particular ſelf-actions; or betwixt a whole, and its parts; a cauſe, and its effects: for ſelf-knowledg is the ground and principle of all particular knowledges, as ſelf-motion is the ground and principle of all particular actions, changes and varieties of natural figures.

9. As Infinite Nature has an infinite ſelf-motion and ſelf-knowledg, ſo every part and particle has a particular and finite ſelf-motion and ſelf-knowledg, by which it knows it ſelf, and its own actions, and perceives alſo other parts and actions; which latter is properly called Perception; not as if there were two different Principles of knowledg in every particular Creature or part of Nature; but they are two different acts of one and the ſame interior and inherent ſelf-knowledg,

ledg, which is a part of Natures infinite ſelf-knowledg.

10. Thus Perception, or a perceptive knowledg, belongs properly to parts, and may alſo be called an exterior knowledg, by reaſon it extends to exterior objects.

11. Though ſelf-knowledg is the ground and principle of all particular knowledges and perceptions, yet ſelf-motion, ſince it is the cauſe of all the variety of natural figures, and of the various compoſitions and diviſions of parts, it is alſo the cauſe of all Perceptions.

12. As there is a double degree of corporeal ſelf-motion, *viz.* Rational, and Senſitive; ſo there is alſo a double degree of Perception, Rational, and Senſitive.

13. A whole may know its parts, and an Infinite a Finite; but no particular part can know its whole, nor one finite part that which is infinite. I ſay, no particular part; for when parts are regularly compoſed, they may by a general Conjunction or Union of their particular knowledges and perceptions, know more, and ſo judg more probably of the whole, or of Infinite; and although by the diviſion of parts, thoſe compoſed knowledges and perceptions, may be broke aſunder like a ruined houſe or Caſtle, Kingdom or Government; yet ſome of the ſame Materials may chance to be put to the ſame uſes, and ſome may be joined to thoſe that formerly imployed themſelves otherways: And hence

I conclude, That no particular parts are bound to certain particular actions, no more then Nature her ſelf, which is ſelf-moving Matter; for as Nature is full of variety of motions or actions, ſo are her parts; or elſe ſhe could not be ſaid ſelf-moving, if ſhe were bound to certain actions, and had not liberty to move as ſhe pleaſes: for though God, the Authour of Nature, has ordered her ſo that ſhe cannot work beyond her own nature, that is, beyond Matter; yet has ſhe freedom to move as ſhe will; neither can it be certainly affirmed, that the ſucceſsive propagation of the ſeveral ſpecies of Creatures is decreed and ordained by God, ſo that Nature muſt of neceſsity work to their continuation, and can do no otherwiſe; but humane ſenſe and reaſon may obſerve, that the ſame parts keep not always to the ſame particular actions, ſo as to move to the ſame ſpecies or figures; for thoſe parts that join in the compoſition of an animal, alter their actions in its diſſolution, and in the framing of other figures; ſo that the ſame parts which were joined in one particular animal, may, when they diſſolve from that compoſed figure, join ſeverally to the compoſition of other figures; as for example, of Minerals, Vegetables, Elements, *&c.* and ſome may join with ſome ſorts of Creatures, and ſome with others, and ſo produce creatures of different ſorts, when as before they were all united in one particular Creature; for particular parts are not bound to work or move to a certain particular action, but they work according

according to the wiſdom and liberty of Nature, which is onely bound by the Omnipotent God's Decree not to work beyond her ſelf, that is, beyond Matter; and ſince Matter is dividable, Nature is neceſsitated to move in parts; for Matter can be without parts, no more then parts can be without a whole; neither can Nature, being material, make her ſelf void of figure, nor can ſhe reſt, being ſelf-moving; but ſhe is bound to divide and compoſe her ſeveral parts into ſeveral particular figures, and diſſolve and change thoſe figures again infinite ways: All which proves the variety of Nature, which is ſo great, that even in one and the ſame ſpecies, none of the particulars reſemble one another ſo much as not to be diſcerned from each other.

But to return to Knowledg and Perception; I ſay they are general and fundamental actions of Nature; it being not probable that the infinite parts of Nature ſhould move ſo variouſly, nay, ſo orderly and methodically as they do, without knowing what they do, or why and whether they move; and therefore all particular actions whatſoever in Nature, as reſpiration, digeſtion, ſympathy, antipathy, diviſion, compoſition, preſſure, reaction, *&c.* are all particular perceptive and knowing actions; for if a part be divided from other parts, both are ſenſible of their diviſion: The like may be ſaid of the compoſition of parts. And as for Preſſure and Reaction, they are as knowing and perceptive as any other particular actions; but yet this does not

prove

prove, that they are the principle of perception; and that there's no Perception but what is made by Preſſure and Reaction, or that at leaſt they are the ground of Animal Perception; for as they are no more but particular actions, ſo they have but particular perceptions; and although all Motion is ſenſible, yet no part is ſenſible but by its own motions in its own parts; that is, no corporeal motion is ſenſible but of or by it ſelf: Therefore when a man moves a ſtring, or toſſes a Ball; the ſtring or ball is no more ſenſible of the motion of the hand, then the hand is of the motion of the ſtring or ball, but the hand is onely an occaſion that the ſtring or ball moves thus or thus. I will not ſay, but that it may have ſome perception of the hand according to the nature of its own figure, but it does not move by the hands motion, but by its own; for there can be no motion imparted without matter or ſubſtance.

Neither can I certainly affirm, that all Perception conſiſts in patterning out exterior objects, for although the perception of our humane ſenſes is made that way, yet Natures actions being ſo various, I dare not conclude from thence that all the perceptions of the infinitely various parts and figures of Nature are made all after the ſame manner. Nevertheleſs, it is probable to ſenſe and reaſon, that the infinite parts of Nature have not onely interior ſelf-knowledg, but alſo exterior perceptions of other figures or parts, and their actions; by reaſon there is a perpetual commerce and entercourſe between

between parts and parts, and the chief actions of Nature are compoſition and diviſion, which produce all the variety of Nature; which proves, there muſt of neceſsity be perception between parts and parts; but how all theſe particular perceptions are made, no particular creature is able to know, by reaſon of their variety; for as the actions of Nature vary, ſo do the perceptions. Therefore it is abſurd to confine all perception of Nature, either to preſſure and reaction, or to the animal kind of perception, ſince even in one and the ſame animal ſenſe; as for example, of ſeeing, there are numerous perceptions; for every motion of the Eye, were it no more then a hairs breadth, cauſes a ſeveral perception; beſides, it is not onely the five organs in an animal, but every part and particle of his body that has a peculiar knowledg and perception, becauſe it conſiſts of ſelf-moving Matter: Which if ſo, then a Looking-glaſs that patterns out the face of a Man, and a Mans Eye that patterns again the copy from the Glaſs, cannot be ſaid to have the ſame perception, by reaſon a Glaſs, and an animal, are different ſorts of Creatures; for though a piece of Wood, Stone, or Metal, may have a perceptive knowledg of Man, yet it hath not a Man's perception, becauſe it is a Vegetable or Mineral, and cannot have an Animal knowledg or perception, no more, then the Eye patterning out a Tree or Stone, can be ſaid to have a Vegetable or Mineral Perception; nay, when

one Animal, as for example one man, perceives another, he doth not perceive his knowledg; for it is one thing to perceive the exterior figure of a Creature, and another thing to perceive its interior, proper, and innate actions; alſo it is one thing to perceive exterior objects, and another to receive knowledg; for no part can give away to another its inherent and proper particular nature, neither can one part make it ſelf another part; it may imitate ſome actions of another part, but not make it ſelf the ſame part; which proves, that each part muſt have its own knowledg and perception, according to its own particular nature; for though ſeveral parts may have the like perceptions, yet they are not the ſame; and although the exterior figures of ſome objects may be alike, yet the perceptions may be quite different; 'tis true, ſenſitive and rational knowledg is general and infinite in Nature; but every part being finite, can have but a finite and particular knowledg, and that according to the nature of its particular figure; for as not all Creatures, although they be compoſed of one Matter, are alike in their figures, ſo not all can have the like knowledges and perceptions, though they have all ſelf-motion; for particular Creatures and actions are but effects of the onely Infinite ſelf-moving Matter, and ſo are particular perceptions; and although they are different, yet the difference of effects does not argue different cauſes; but one and the ſame cauſe may produce ſeveral and different effects; ſo that although there

there be infinite different motions in Nature, yet they are all but motions, and cannot differ from each other in being motions or ſelf-moving parts; and although there be infinite ſeveral and different perceptions, yet they are all perceptions; for the effects cannot alter the cauſe, but the cauſe may alter the effects: Wherefore rational and ſenſitive corporeal motions cannot change from being motions, though they may change from moving thus, to move thus; nor perceptions from being perceptions, though they may change from being ſuch or ſuch particular perceptions; for the change is onely in particulars, not in the ground or principle which continues always the ſame. The truth is, as it is impoſsible that one figure ſhould be another figure, or one part another part; ſo likewiſe it is impoſsible, that the perception of one part ſhould be the perception of another; but being in parts, they muſt be ſeveral, and thoſe parts being different, they muſt be different alſo: But ſome are more different then others; for the perceptions of Creatures of different ſorts, as for example, of a Vegetable and an Animal, are more different then the perception of particulars of one ſort, or of one compoſed figure; for as there is difference in their interior natures, ſo in their perceptions; ſo that a Mineral or Vegetable that perceives the figure of an Animal, has no more the perception of an Animal, then an Animal which perceives or patterns out the figure of a Mineral or Vegetable, has the perceptions of thoſe Creatures; for

for example, when a man lies upon a ſtone, or leans on a tree, or handles and touches water, *&c.* although theſe parts be ſo cloſely joined to each other, yet their perceptions are quite different; for the man onely knows what he feels, or ſees, or hears, or ſmells, or taſteth, but knows not what ſenſe or perception thoſe parts have; nay, he is ſo far from that, that even one part of his body doth not know the ſenſe and perception of another part of his body; as for example, one of his hands knows not the ſenſe and perception of his other hand; nay, one part of his hand knows not the perception of another part of the ſame hand; for as the corporeal figurative motions differ, ſo do particular knowledges and perceptions; and although ſenſitive and rational knowledg is general and infinite in infinite Nature, yet every part being finite, has but finite and particular perceptions; beſides, perception being but an effect, and not a cauſe, is more various in particulars; for although all Creatures are compoſed of rational and ſenſitive Matter, yet their perceptions are not alike; neither can the effect alter the cauſe; for though the ſeveral actions of ſenſitive and rational Matter be various, and make ſeveral perceptions, yet they cannot make ſeveral kinds of ſenſitive and rational Matter; but when as perceptions change, the parts of the ſenſitive and rational matter remain the ſame in themſelves; that is, they do not change from being ſenſitive or rational parts, although they may make numerous

merous perceptions in their particular parts, according to the various changes of ſelf-motion.

But ſome may ſay, If the particular parts of one compoſed figure be ſo ignorant of each others knowledg, as I have expreſſed, How can they agree in ſome action of the whole figure, where they muſt all be imployed, and work agreeably to one effect? As for example; when the Mind deſigns to go to ſuch a place, or do ſuch a work; How can all the parts agree in the performing of this act, if they be ignorant of each others actions? I anſwer: Although every Parts knowledg and perception, is its own, and not anothers; ſo that every part knows by its own knowledg, and perceives by its own perception; yet it doth not follow from thence, that no part has any more knowledg then of it ſelf, or of its own actions; for, as I ſaid before, it is well to be obſerved, that there being an entercourſe and commerce, as alſo an acquaintance and agreement between parts and parts, there muſt alſo of neceſsity be ſome knowledg or perception betwixt them, that is, one part muſt be able to perceive another part, and the actions of that ſame part; for whereſoever is life and knowledg, that is, ſenſe and reaſon, there is alſo perception; and though no part of Nature can have an abſolute knowledg, yet it is neither abſolutely ignorant, but it has a particular knowledg, and particular perceptions, according to the nature of its own innate and interior figure. In ſhort, as there are ſeveral kinds,

ſorts and particular perceptions, and particular ignorances between parts, ſo there are more general perceptions between ſome parts, then between others; the like of ignorance; all which is according to the various actions of corporeal ſelf-motion: But yet no part can have a thorow perception of all other parts and their actions, or be ſure that that part which it perceives has the like perception of it again; for one part may perceive another part, and yet this part may be ignorant of that part, and its perception; for example, my eye perceives an object, but that object is not neceſsitated to perceive my eye again; alſo my eye may perceive the pattern of it ſelf made in a Looking-glaſs, and yet be ignorant whether the Glaſs do the like. Again, when two parts touch each other, one part may perceive the other, and yet be ignorant whether t' other does the like; for example, a man joins both his hands together; they may have perception of each other, and yet be ignorant of each others perception; and moſt commonly, one part judges of anothers perception by its own; for when one man perceives the actions of another man, he judges by thoſe actions what perceptions he has, ſo that judgment is but a comparing of actions; for as likeneſs of interior motions makes ſympathy, ſo comparing of actions makes judgment, to know and diſtinguiſh what is alike, and what is not. Therefore perception of exterior objects, though it proceeds from an interior principle of ſelf-knowledg,

yet

yet it is nothing elſe but an obſervation of exterior parts or actions; ſo that parts in their ſeveral compoſitions and diviſions may have ſeveral perceptions of each other, according to the nature of their figurative corporeal motions; and although each parts knowledg is its own, yet parts may have as much knowledg of each other, as they can perceive, or obſerve of each other; for the perceptive motions of one part, may inform themſelves of the actions of other parts. The truth is, every particular part has its own motions figures, ſenſe and reaſon, which by a conjunction or compoſition of parts, makes a general knowledg; for as the diviſion of parts cauſes a general obſcurity, ſo compoſition of parts makes a general knowledg and underſtanding; and as every part has ſelf-motion, ſo it has ſelf-knowledg and perception.

But it is to be obſerved, That ſince there is a double perception in the infinite parts of Nature, ſenſitive and rational; the perception and information of the rational parts is more general, then of the ſenſitive, they being the moſt prudent, deſigning and governing parts of Nature, not ſo much encumbred with labouring on the inanimate parts of matter as the ſenſitive: Therefore the rational parts in a compoſed figure, or united action, may ſooner have a general knowledg and information of the whole then the ſenſitive; whoſe knowledg is more particular; as for example, a man may have a pain in one of the parts of his body, although the

the perception thereof is made by the ſenſitive corporeal motions in that ſame part, yet the next adjoining ſenſitive parts may be ignorant thereof, when as all the rational parts of the whole body may take notice of it. Thus the rational parts having a more general acquaintance then the ſenſitive, and being alſo the deſigning and architectonical parts, they imploy the ſenſitive parts to work to the ſame effect; but theſe are not always ready to obey, but force ſometimes the rational to obey them, which we call irregularity; which is nothing but an oppoſition or ſtrife between parts; as for example, a man deſigns to imploy the exterior ſtrength and action of his exterior parts; but if through irregularity the legs and arms be weak, the ſtomack ſick, the head full of pain; they will not agree to the executing of the commands of the rational parts. Likewiſe the mind endeavours often to keep the ſenſitive motions of the body from diſſolution; but they many times follow the mode, and imitate other objects, or cauſe a diſſolution or diviſion of that compoſed figure by voluntary actions.

Thus the ſenſitive and rational motions do oftentimes croſs and oppoſe each other; for although ſeveral parts are united in one body, yet are they not always bound to agree in one action; nor can it be otherwiſe; for were there no diſagreement between them, there would be no irregularities, and conſequently no pain or ſickneſs, nor no diſſolution of any natural figure. And

And ſuch an agreement and diſagreement is not onely betwixt the rational and ſenſitive parts, but alſo betwixt the rational and rational, the ſenſitive and ſenſitive; for ſome rational Parts, may in one compoſed figure have oppoſite actions; as for example, the Mind of Man may be divided ſo, as to hate one perſon, and love another; nay, hate and love one and the ſame perſon for ſeveral things at the ſame time, as alſo rejoice and grieve at the ſame time. For example, a man has two Sons; one is kill'd in the Wars, and the other comes home with victory and honour; the Father grieves for the ſlain Son, and rejoyces for the victorious Son: for the Mind being material, is dividable as well as compoſable; and therefore its parts may as well oppoſe each other, as agree; for agreement and friendſhip is made by compoſition, and diſagreement by diviſion; and ſenſe and reaſon is either ſtronger or weaker, by compoſition or diviſion, regularity or irregularity, for a greater number of parts may over-power a leſs; alſo there are advantages and diſadvantages amongſt parts, according to the ſeveral ſorts of corporeal figurative motions; ſo that ſome ſorts of corporeal motions, although fewer or weaker, may over-power others that are more numerous and ſtrong; but the rational being the moſt ſubtil, active, obſerving and inſpective parts, have, for the moſt part, more power over the ſenſitive, then the ſenſitive have over them; which makes that they, for the moſt

part, work regularly, and cauſe all the orderly and regular compoſitions, diſſolutions, changes and varieties in the infinite parts of Nature; beſides, their perception and obſervation being more general, it laſts longer; for the rational continue the perception of the paſt actions of the ſenſitive, when as the ſenſitive keep no ſuch records.

Some ſay, that Perception is made by the Ideas of exterior objects entering into the organs of the ſentient; but this opinion cannot be probable to ſenſe and reaſon; for firſt, If Ideas ſubſiſt of themſelves, then they muſt have their own figures, and ſo the figures of the objects would not be perceived, but onely the figures of the Ideas. But if thoſe Ideas be the figures of the objects themſelves, then by entring into our ſenſories the objects would loſe them; for one ſingle object can have no more but one exterior figure at one time, which ſurely it cannot loſe and keep at one and the ſame time; But if it be a Print of the object on the Air, it is impoſſible there could be ſuch ſeveral ſorts of Prints as there are Perceptions, without a notable confuſion. Beſides: when I conſider the little paſſages, as in the ſenſe of touch, the pores of the fleſh, through which they muſt enter, I cannot readily believe it; nay, the Motions and Prints would grow ſo weak, and faint in their journey, eſpecially if the object be a great way off, as they would become of no effect. But if their opinion be, that Ideas can change and alter, then all immaterial ſubſtances

ſubſtances may do the ſame, and ſpirits may change and alter into ſeveral immaterial figures; which, in my opinion cannot be: for what is ſupernatural, is unalterable; and therefore the opinion of Ideas in perception, is as irregular, as the opinion of ſenſeleſs atomes in the framing of a Regular World.

Again: Some of our Modern Philoſophers are of opinion, That the ſubject wherein Colour and Image are inherent, is not the object or thing ſeen; for Image and Colour, ſay they, may be there where the thing ſeen is not: As for example, The Sun, and other viſible objects, by reflexion in Water or Glaſs; ſo that there is nothing without us really which we call Image or Colour; for the Image or Colour is but an apparition unto us of the motion and agitation which the object works in the brain or ſpirits, and divers times men ſee directly the ſame object double, as two Candles for one, and the like. To which I anſwer: That all this doth not prove that the object is not perceived, or that an object can be without image or colour, or that figure and colour are not the ſame with the object; but it proves, that the object enters not the eye, but is onely patterned out by the perceptive motions in the optick ſenſe; for the reflection of the Sun in Water or Glaſs, is but a copy of the original, made by the figurative perceptive motions in the Glaſs or Water, which may pattern out an object as well as we do; which copy is patterned out again by our optick perception, and

ſo

ſo one copy is made by another. The truth is, Our optick ſenſe could not perceive either the original, or copy of an exterior object, if it did not make thoſe figures in its own parts; and therefore figure and colour are both in the object, and the eye; and not, as they ſay, neither in the object, nor in the eye; for though I grant that one thing cannot be in two places at once, yet there may be ſeveral copies made of one original, in ſeveral parts, which are ſeveral places, at one and the ſame time; which is more probable, then that figure and colour ſhould neither be in the object, nor in the eye, or according to their own words, that figure and colour ſhould be there where the thing ſeen is not; which is to ſeparate it from the object, a thing againſt all poſsibility, ſenſe and reaſon; or elſe, that a ſubſtanceleſs and ſenſeleſs Motion ſhould make a progreſsive journey from the object to the ſentient, and there print, figure and colour upon the optick ſenſe by a bare agitation or concuſsion, ſo that the perception or apparition, (as they call it) of an object, ſhould onely be according to the ſtroke the agitation makes; as for example, the perception of light after ſuch a manner, figure after ſuch, and colour after another; for if Motion be no ſubſtance or body, and beſides void of ſenſe, not knowing what it acts; I cannot conceive how it ſhould make ſuch different ſtrokes upon both the ſenſitive organ, and the brain, and all ſo orderly that every thing is perceived differently and diſtinctly. Truly this opinion

is

is like *Epicurus*'s of Atomes; but how abſurd it is to make ſenſeleſs corpuſcles the cauſe of ſenſe and reaſon, and conſequently of perception, is obvious to every ones apprehenſion, and needs no demonſtration.

Next, as Colour, according to their opinion, is not inherent any otherwiſe in the object, but by an effect thereof upon us, cauſed by ſuch a motion in the object; ſo neither, ſay they, is ſound in the thing we hear, but in our ſelves; for as a man may ſee, ſo he may hear double or trebble by multiplication of Ecchoes, which are ſounds as well as the Original, and not being in one and the ſame place, cannot be inherent in the body; for the Clapper has no ſound in it, but motion; and maketh motion in the inward parts of the Bell; neither has the Bell motion, but ſound; and imparts motion to the air, the air again imparts motion to the ear and nerves, until it comes to the brain, which has motion, not ſound; from the brain it rebounds back into the nerves outward, and then it becoms an apparition without, which we call ſound. But Good Lord, what a confuſion would all this produce, if it were thus! What need is there of imparting Motion, when Nature can do it a much eaſier way? I wonder how rational men can believe that motion can be imparted without matter: Next, that all this can be done in an inſtant: Again, that it is the organ of the ſentient that makes colour, ſound, and the like, and that they are not really inherent in the object it ſelf. For

were there no men to perceive ſuch or ſuch a colour, figure or ſound, can we rationally think that object would have no colour, figure nor ſound at all? I will not ſay, That there is no preſſure or reaction, but they do not make ſenſe or reaſon; ſeveral parts may produce ſeveral effects by their ſeveral compoſitions, but yet this does not prove that there can be no perception but by preſſure upon the organ, and conſequently the brain, and that the thing perceived is not really exiſtent in the object, but a bare apparition to the ſentient; the Clapper gives no Motion to the Bell, but both the Clapper, and the Bell, have each their own Motion by which they act in ſtriking each other, and the conjunction of ſuch or ſuch parts makes a real ſound, were there no Ear to hear it.

Again: Concerning the ſenſe of Touch, the heat, ſay they, we feel from the Fire, is in us; for it is quite different from that in the fire; our heat is pleaſure, or pain; according as it is great or moderate; but in the Coal there is no ſuch thing. I anſwer: They are ſo far in the right, that the heat, we feel, is made by the perceptive motions of, and in our own parts, and not by the fires parts acting upon us; but yet if the fire were not really ſuch a thing as it is, that is, a hot and burning body, our ſenſe would not ſo readily figure it out as it does; which proves, it is a real copy of a real object, and not a meer fantaſme, or bare imparted motion from the object to the ſentient, made by preſſure and reaction; for

for if ſo, the fire would waſte in a moment of time, by imparting ſo much motion to ſo many ſentients; beſides, the ſeveral ſtrokes which the ſeveral imparted motions make upon the ſentient, and the reaction from the ſentient to the exterior parts, would cauſe ſuch a ſtrong and confuſed agitation in the ſentient, that it would rather occaſion the body to diſſolve through the irregularities of ſuch forced motions. But having diſcourſed enough of this ſubject heretofore, I will add no more, but refer both their and my own opinions, to the judicious and unpartial Reader; Onely concerning Fire, becauſe they believe, it is the onely ſhining body upon Earth, I will ſay this: If it were true; then a Glow-worms tail, and Cats eyes, muſt be fire alſo; which yet Experience makes us believe otherwiſe.

As for Sleep, they call it a privation of the act of ſenſe; To which I can no ways give my conſent, becauſe I believe ſenſe to be a perpetual corporeal ſelf-motion without any reſt. Neither do I think the ſenſes can be lockt up in ſleep; for if they be ſelf-moving, they cannot be ſhut up, it being as impoſsible to deprive ſelf-motion of acting, as to deſtroy its nature; but if they have no ſelf-motion, they need no locking up at all; becauſe it would be their nature to reſt, as being moveleſs. In ſhort, ſenſe being ſelf-motion, can neither reſt nor ceaſe; for what they call ceſſation, is nothing elſe but an alteration of corporeal ſelf-motion:

and

and thus Ceſſation will require as much a ſelf-moving Agent, as all other actions of Nature.

Laſtly, ſay they, It is impoſsible for ſenſe to imagine a thing paſt, for ſenſe is onely of things preſent. I anſwer, 'tis true, by reaſon the ſenſitive corporeal motions work on and with the parts of Inanimate Matter; nevertheleſs, when a repetition is made of the ſame actions, and the ſame parts, it is a ſenſitive remembrance: And thus is alſo Experience made: which proves, there is a ſenſitive perception and ſelf-knowledg; becauſe the ſenſes are well acquainted with thoſe objects they have often figured or patterned out; and to give a further demonſtration thereof, we ſee that the ſenſes are amazed, and ſometimes frighted at ſuch objects as are unuſual, or have never been preſented to them before. In ſhort, Conception, Imagination, Remembrance, Experience, Obſervation, and the like, are all made by coporeal ſelf-knowing, perceptive ſelf-motion, and not by inſenſible, irrational, dull, and moveleſs Matter.

36. *Of the different Perceptions of Senſe and Reaſon.*

HAving declared in the former diſcourſe, that there is a double Perception in all Parts of Nature, to wit, Rational and Senſitive; ſome might ask, How theſe two degrees of Motions work; whether differently

or

or unitedly in every part to one and the ſame perception?

I anſwer: That regularly the animal perception of exterior objects, is made by its own ſenſitive, rational, corporeal and figurative motions; the ſenſitive patterning out the figure or action of an outward object in the ſenſitive organ; and the rational making a figure of the ſame object in their own ſubſtance; ſo that both the rational and ſenſitive motions work to one and the ſame perception, and that at the ſame point of time, and as it were by one act; but yet it is to be obſerved, that many times they do not move together to one and the ſame perception; for the ſenſitive and rational motions do many times move differently even in one and the ſame part; as for the rational, they being not incumbred with any other parts of matter, but moving in their own degree, are not at all bound to work always with the ſenſitive, as is evident in the production of Fancies, Thoughts, Imaginations, Conceptions, *&c.* which are figures made onely by the rational motions in their own matter or ſubſtance, without the help of the ſenſitive; and the ſenſitive, although they do not commonly work without the rational, yet many times they do; and ſometimes both the rational and ſenſitive work without patterns, that is, voluntarily and by rote; and ſometimes the ſenſitive take patterns from the rational, as in the invention of arts, or the like; ſo that there is no neceſsity that they ſhould always work together to

the ſame perception. Concerning the perception of exterior objects, I will give an inſtance, where both the rational and ſenſitive motions do work differently, and not to the ſame perception: Suppoſe a man be in a deep contemplative ſtudy, and ſome body touch or pinch him, it happens oft that he takes no notice at all of it, nor doth not feel it, when as yet his touched or pinched parts are ſenſible, or have a ſenſitive perception thereof; alſo a man doth often ſee or hear ſomething without minding or taking notice thereof, eſpecially when his thoughts are buſily imployed about ſome other things; which proves, that his Mind, or rational motions work quite to another perception then his ſenſitive do. But ſome perhaps will ſay, becauſe there is a thorow mixture of animate (rational and ſenſitive) and inanimate matter, and ſo cloſe and inſeparable a union and conjunction betwixt them, it is impoſsible they ſhould work differently, or not together: Beſides, the alledged example doth not prove, that the rational and ſenſitive motions in one and the ſame part that is touched or pinched, or in the organ which hears or ſeeth, do not work together, but proves onely, that the ſenſitive motions of the touched part or organ, and the rational motions in the head or brain, do not work together; when as nevertheleſs, although a man takes no notice of another mans touching or pinching, the rational motions of that ſame part may perceive it. To which I anſwer: Firſt, I do not deny that there is a cloſe

cloſe conjunction and commixture of both the rational and ſenſitive parts in every body or creatnre, and that they are always moving and acting; but I deny that they are always moving to the ſame perception; for to be, and move together, and to move together to the ſame perception, are two different things. Next, although I allow that there are particular, both rational and ſenſitive figurative motions in every part and particle of the body; yet the rational being more obſerving and inſpective then the ſenſitive, as being the deſigning and ordering parts, may ſooner have a general information and knowledg of all other rational parts of the compoſed figure, and may all unitedly work to the conceptions or thoughts of the muſing and contemplating man; ſo that his rational motions in the pinched part of his body, may work to his interior conceptions, and the ſenſitive motions of the ſame part, to the exterior perception: for although I ſay in my Philoſophical Opinions, that all Thoughts, Fancies, Imaginations, Conceptions, *&c.* are made in the head, and all Paſsions in the heart; yet I do not mean that all rational figurative actions are onely confined to the head, and to the heart, and are in no other parts of the body of an Animal, or Man; for ſurely, I believe there is ſenſe and reaſon, or ſenſitive and rational knowledg, not onely in all Creatures, but in every part of every particular Creature. But ſince the ſenſitive organs in man are joined in that part which is named the

the head, we belive that all knowledg lies in the head, by reaſon the other parts of the body do not ſee as the eyes, nor hear as the ears, nor ſmell as the noſe, nor taſte as the tongue, *&c.* all which makes us prefer the rational and ſenſitive motions that work to thoſe perceptions in the mentioned organs, before the motions in the other parts of the body; when as yet theſe are no leſs rational or ſenſible then they, although the actions of their ſenſitive and rational perceptions are after another manner; for the motions of digeſtion, growth, decay, *&c.* are as ſenſible, and as rational as thoſe five ſenſitive organs, or the head; and the heart, liver, lungs, ſpleen, ſtomack, bowels, and the reſt, know as well their office and functions, and are as ſenſible of their pains, diſeaſes, conſtitutions, tempers, nouriſhments, *&c.* as the eyes, ears, noſtrils, tongue, *&c.* know their particular actions and perceptions; for although no particular part can know the Infinite parts of Nature, yet every part may know it ſelf, and its own actions, as being ſelf-moving. And therefore the head or brains cannot ingroſs all knowledg to themſelves; but the other parts of the body have as much in the deſigning and production of a Creature, as the brain has in the production of a Thought; for Children are not produced by thoughts, no more then digeſtion or nouriſhment is produced by the eyes, or the making of blood by the ears; or the ſeveral appetites of the body by the five exterior ſenſitive organs; But although

all

all, (interior as well as exterior) parts of the body have their particular knowledges and perceptions different from thoſe of the head and the five ſenſitive organs, and the heads and organs knowledg and perception are differing from them; nevertheleſs, they have acquaintance or correſpondence with each other; for when the ſtomack has an appetite to food, the mouth and hands endeavour to ſerve it, and the legs are willing to run for it: The ſame may be ſaid of other Appetites. Alſo in caſe of Oppreſsion, when one part of the body is oppreſſed, or in diſtreſs, all the other parts endeavour to relieve that diſtreſſed or afflicted part. Thus although there is difference between the particular actions, knowledges and perceptions of every part, which cauſes an ignorance betwixt them, yet by reaſon there is knowledg and perception in every part, by which each part doth not onely know it ſelf, and its own actions, but has alſo a perception of ſome actions of its neighbouring parts; it cauſes a general intelligence and information betwixt the particular parts of a compoſed figure; which information and intelligence, as I have mentioned heretofore, is more general betwixt the rational then the ſenſitive parts; for though both the ſenſitive and rational parts are ſo cloſely intermixt that they may have knowledg of each other, yet the ſenſitive parts are not ſo generally knowing of the concerns of a compoſed figure as the rational, by reaſon the rational are more free and

at liberty then the ſenſitive, which are more incumbred with working on and with the inanimate parts of Matter; and therefore it may very well be, that a man in a deep contemplative ſtudy doth not always feel when he is pinched or touched; becauſe all the rational motions of his body concur or join to the conception of his muſing thoughts; ſo that onely the ſenſitive motions in that part do work to the perception of touch, when as the rational, even of the ſame part, may work to the conception of his thoughts. Beſides, it happeneth oft that there is not always an agreement betwixt the rational and ſenſitive motions, even in the ſame parts; for the rational may move regularly, and the ſenſitive irregularly; or the ſenſitive may move regularly, and the rational irregularly; nay, often there are irregularities and diſagreements in the ſame degree of motions, as betwixt rational and rational, ſenſitive and ſenſitive; And although it be proper for the rational to inform the ſenſitive, yet the ſenſitive do often inform the rational; onely they cannot give ſuch a general information as the rational; for one rational part can inform all other rational parts in a moment of time, and by one act: And therefore rational knowledg is not onely in the head or brains, but in every part or particle of the body.

Some Learned conceive, That all knowledg is in the Mind, and none in the ſenſes: For the ſenſes, ſay they, preſent onely exterior objects to the mind; who

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ſits as a Judg in the kernel or fourth ventricle of the brain, or in the orifice of the ſtomack, and judges of them; which in my apprehenſion is a very odd opinion: For firſt, they allow that all knowledg and perception comes by the ſenſes, and the ſenſitive ſpirits; who like faithful ſervants run to and fro, as from the ſenſitive organs to the brain and back, to carry news to the mind; and yet they do not grant that they have any knowledg at all: which ſhews, they are very dull ſervants, and I wonder how they can inform the mind of what they do not know themſelves. Perchance, they'l ſay, it is after the manner or way of intelligence by Letters, and not by word of mouth; for thoſe that carry Letters to and fro, know nothing of the buſineſs that intercedes betwixt the correſpondents, and ſo it may be betwixt the mind, and the external object. I anſwer: Firſt, I cannot believe there's ſuch a correſpondence between the object and the mind of the ſentient, or perceiver; for if the mind and the object ſhould be compared to ſuch two intelligencers, they would always have the like perception of each other, which we ſee is not ſo; for oftentimes I have a perception of ſuch or ſuch an object, but that object may have no perception of me; beſides, there's nothing carried from the object to the mind of the ſentient by its officers the ſenſitive ſpirits, as there is betwixt two correſpondents; for there's no perception made by an actual emiſsion of parts from the object to the mind; for if Perception

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were made that way, not onely ſome parts of the object, but the figure of the whole object would enter through the ſenſitive organ, and preſent it ſelf before the mind, by reaſon all objects are not perceived in parts, but many in whole; and ſince the exterior figure of the object is onely perceived by the ſenſes, then the bare figure would enter into the brain without the body or ſubſtance of the object: which how it could be, I am not able to conceive; nay, if it were poſsible, truly it would not be hidden from the Minds officers the ſenſitive ſpirits, except they did carry it veiled or covered; but then they would know at leaſt from whence they had it, and to whom and how they were to carry it. Wherefore it is abſurd, in my opinion, to ſay, that the ſenſes bring all knowledg of exterior objects to the mind, and yet have none themſelves; and that the mind chiefly reſides but in one part of the body; ſo that when the heel is touched, the ſenſitive ſpirits, who watch in that place, do run up to the head, and bring news to the mind. Truly if the ſenſes have no knowledg of themſelves, How comes it that a man born blind cannot tell what the light of the Sun is, or the light of a Candle, or the light of a Glow-worms tail? For though ſome objects of one ſenſe may be gueſſed by the perception of another ſenſe, as we may gueſs by touch the perception of an object that belongs to ſight, *&c.* yet we cannot perfectly know it except we ſaw it, by reaſon the perception of ſight belongs onely

onely to the optick ſenſe. But ſome may ask, if a man be ſo blind, that he cannot make uſe of his optick ſenſe, what is become of the ſenſitive motions in that ſame part of his body, to wit, the optick ſenſorium? I anſwer, The motions of that part are not loſt, becauſe the man is blind, and cannot ſee; for a privation or abſence of a thing, doth not prove that it is quite loſt; but the ſame motions which formerly did work to the perception of ſight, are onely changed, and work now to ſome other action then the perception of ſight; ſo that it is onely a change or alteration of motions in the ſame parts, and not an annihilation; for there's no ſuch thing as an annihilation in Nature, but all the variety in Nature is made by change of motions. Wherefore, to conclude, the opinion of ſenſe and reaſon, or a ſenſitive and rational knowledg in all parts of Nature, is, in my judgment, more probable and rational, then the Opinion which confines all knowledg of Nature to a mans Brains or Head, and allows none neither to the Senſes, nor to any part of Nature.

37. *Several Queſtions and Anſwers concerning Knowledg and Perception.*

I Am not ignorant that endleſs queſtions and objections may be raiſed upon one ſubject; and to anſwer them would be an infinite labour: But ſince I deſire to be perſpicuous in delivering my opinions, and

to remove all thoſe ſcruples which ſeem to obſtruct the ſenſe thereof, I have choſen rather to be guilty of prolixity and repetitions, then to be obſcure by too much brevity. And therefore I will add to my former diſcourſe of knowledg and perception the reſolution of theſe following queſtions, which, I hope, will render it more intelligible.

Q. 1. *What difference is there between Self-knowledg, and Perception?*

I anſwer: There is as much difference betwixt them, as betwixt a whole, and its parts; or a cauſe, and its effects: For though Self-motion be the occaſional cauſe of particular perceptions, by reaſon it is the cauſe of all particular actions of Nature, and of the variety of figures; yet ſelf-knowledg is the ground or fundamental cauſe of Perception; for were there not ſelf-knowledg, there could not be perception, by reaſon perceptions are nothing elſe, but particular exterior knowledges, or knowledges of exterior parts and actions, occaſioned by the various compoſitions and diviſions of parts; ſo that ſelf-moving Matter has a perceptive ſelf-knowledg; and conſiſting of infinite Parts, thoſe parts have particular ſelf-knowledges and perceptions, according to the variety of the corporeal figurative motions, which, as they are particular, cannot be infinite in themſelves; for although a whole may know its parts, yet the parts cannot poſsibly know the whole; becauſe an infinite may know a finite, but

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a finite cannot know an infinite. Nevertheleſs, when many parts are regularly compoſed, thoſe parts by a conjunction or union of their particular ſelf-knowledges and perceptions of each other, may know more, and ſo judg more probably of infinite, as I have declared above; but as for ſingle parts, there is no ſuch thing in Nature, no more then there can be an Infinite part.

Q. 2. *Whether the Inanimate Part of Matter, may not have ſelf-knowledg as well as the Animate?*

I anſwer: That, in my opinion, and according to the conceptions of my ſenſe and reaſon, the Inanimate part of matter has ſelf-knowledg as well as the Animate, but not Perception; for it is onely the animate part of matter that is perceptive, and this animate matter being of a two-fold degree, ſenſitive and rational; the rational not being incumbred with the inanimate parts, has a more clear and freer perception then the ſenſitive; which is well to be obſerved; for though the rational, ſenſitive, and inanimate parts of matter make but one infinite ſelf-moving body of Nature, yet there are infinite particular ſelf-knowledges, for Nature is divided into infinite parts, and all parts of Nature are ſelf-knowing: But as all are not animate, ſo all are not perceptive; for Perception, though it proceeds from ſelf-knowledg, as its ground or principle, yet it is alſo an effect of ſelf-motion; for were there no ſelf-motion, there would be no perception; and becauſe Nature

Nature is ſelf-moving, all her parts are ſo too; and as all her parts are moving, ſo they have all compoſitions and diviſions; and as all are ſubject to compoſitions and diviſions, ſo all have variety of ſelf-knowledg; ſo that no part can be ignorant: And by reaſon ſelf-knowledg is the ground and Principle of Perception, it knows all the effects by the variety of their changes; therefore the Inanimate part of Matter may, for any thing I know or perceive, be as knowing as the other parts of Nature; for although it be the groſſeſt part, and ſo the dulleſt, wanting ſelf-motion; yet by the various diviſions and compoſitions which the animate parts do make, the inanimate may be as knowing as the animate.

But ſome may ſay, If Inanimate Matter were knowing of it ſelf, then it would alſo be ſenſible of it ſelf. I anſwer, Self-knowledg is ſo far ſenſible of it ſelf, that it knows it ſelf; and therefore the inanimate part of Matter being ſelf-knowing, may be ſenſible of its own ſelf-knowledg; but yet it is not ſuch a ſenſe as ſelf-moving matter has; that is, a perceptive ſenſe; for the difference of animate and inanimate Matter conſiſts herein, that one is ſelf-moving, and conſequently perceptive, but the other not; and as animate matter is ſelf-moving as well as ſelf-knowing, ſo it is the chief and architectonical part of Nature, which cauſes all the variety that is in Nature; for without animate Matter there could be no compoſition and diviſion, and ſo no variety; and without inanimate Matter, there could not be ſuch

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ſolid compoſitions of parts as there are; for the animate part of Matter cannot be ſo groſs as the inanimate; and therefore without theſe degrees there would be no variety of figures, nor no compoſition of ſolid figures, as Animals, Vegetables, Minerals, *&c.* ſo that thoſe effects which our ſenſe and reaſon perceives, could not be without the degrees of animate and inanimate Matter; neither could there be perception without animate Matter, by which all the various effects of Nature are perceived; for though one Creature cannot perceive all the effects, yet the infinite parts of Nature, by their infinite actions, perceive infinitely.

Again: Some may object, That if the Inanimate part of Matter have ſelf-knowledg and ſenſe, it muſt of neceſsity have life alſo. To which I anſwer: That the Inanimate part of Matter may have life, according as it hath ſenſe and knowledg, but not ſuch a life as the animate part of Matter has, that is, an active life, as to compoſe and divide the infinite body of Nature into infinite parts and figures, and to produce infinite varieties of them, for all this cannot be without motion; nevertheleſs, it has ſo much life as to know it ſelf, and ſo much ſenſe as to be ſenſible of its own ſelf-knowledg. In ſhort, the difference between animate and inanimate Matter's life, ſenſe and ſelf-knowledg, is, that the animate Matter has an active life, and a perceptive ſenſe and ſelf-knowledg, which the inanimate part of Matter has not; becauſe it wants ſelf-motion, which

is the cauſe of all actions and perceptions in Nature.

Q. 3. *Whether the Inanimate Matter could have parts without ſelf-motion?*

I anſwer, Yes: For whereſoever is body or matter, there are alſo parts; becauſe parts belong to body, and there can be no body without parts; but yet were there no ſelf-motion, there could be no various changes of parts or figures. The truth is, Nature conſidered as ſhe is, and as much as our ſenſe and reaſon can perceive by her various effects, muſt of neceſsity be compoſed or conſiſt of a commixture of animate, both rational and ſenſitive, and inanimate matter; for were there no inanimate matter, there would be no ground or groſſer ſubſtance to work on, and ſo no ſolid figures; and were there no animate ſenſitive matter, there would be no labourer, or workman, as I may call it, to form the inanimate part of matter into various figures; nor would there be ſuch infinite changes, compoſitions, diviſions, productions, diſſolutions, *&c.* as we ſee there are. Again: were there no animate rational Matter, there would be no deſigner or ſurveigher, to order and direct all things methodically; nor no Fancies, Imaginations, Conceptions, Memory, *&c.* ſo that this Triumvirate of the degrees of matter, is ſo neceſſary a conſtitutive principle of all natural effects, that Nature could not be without it; I mean, Nature conſidered, not what ſhe might have been,

been, but as ſhe is, and as much as we are able to perceive by her actions; for Natural Philoſophy is no more but a rational inquiſition into the cauſes of natural effects; and therefore, as we obſerve the effects and actions of Nature, ſo we may probably gueſs at their cauſes and principles.

Q. 4. *How ſo fine, ſubtil and pure a part as the Animate Matter is, can work upon ſo groſs a part as the Inanimate?*

I anſwer; More eaſily then Vitriol or Aqua-fortis, or any other high extracts, can work upon metal, or the like; nay, more eaſily then fire can work upon wood, or ſtone, or the like. But you will ſay, That, according to my opinion, theſe bodies are not wrought upon, or divided by the exterior agent, as by fire, vitriol, *&c.* but that they divide themſelves by their own inherent ſelf-motion, and that the agent is no more but an occaſion that the patient moves or acts thus, or thus. I anſwer, 'Tis very true: For there is ſuch a commixture of animate and inanimate matter, that no particle in Nature can be conceived or imagined, which is not compoſed of animate matter as well as of inanimate; and therefore the patient, as well as the agent, having both a commixture of theſe parts of matter, none can act upon the other, but the patient changes its own parts by its own ſelf-motion, either of its own accord, or by way of imitation. But the inanimate part of Matter conſidered in it ſelf, or in its own narure, hath no ſelf-motion, nor

nor can it receive any from the animate; but they being both ſo cloſely intermixt, that they make but one ſelf-moving body of Nature, the animate parts of Matter bear the inanimate with them in all their actions; ſo that it is impoſsible for the animate parts to divide, compoſe, contract, *&c.* but the inaimate muſt ſerve them, or go along with them in all ſuch corporeal figurative actions.

Q. 5. *How is it poſsible, that Parts being ignorant of each other, ſhould agree in the production of a figure?*

I anſwer: When I ſpeak of Ignorance and knowledg, my meaning is, not that there is as much ignorance in the parts of Nature, as there is knowledg, for all parts have ſelf-knowledg; but I underſtand a perceptive knowledg, by which parts do perceive parts; and as for the agreeing actions of parts, they cannot readily err, unleſs it be out of wilfulneſs to oppoſe or croſs each other: for put the caſe the ſenſitive parts were as ignorant of perceptions as the inanimate, yet the rational being thorowly intermixt with them, would cauſe agreeable combinations and connexions of parts in all productions, becauſe they being not incumbred with the burthens of other parts, make more general perceptions then the ſenſitive, and moving freely in their own degree, there is a more perfect acquaintance between them, then the ſenſitive parts; which is the cauſe that the rational deſign and order, when as the ſenſitive labour and work; I mean, when they move

move regularly, or to one and the ſame effect; for then they muſt needs move agreeably and unitedly: But becauſe the ſenſitive parts are perceptive as well as the rational, and perceive not onely the rational adjoining parts, but alſo thoſe of their own degree, they cannot ſo groſly err, as ſome believe, eſpecially ſince the ſenſitive parts do not onely know their own work, but are alſo directed by the rational; but as I have often ſaid, the ſeveral ſorts, both of the ſenſitive and rational perceptions are well to be conſidered, which are as various as the actions of Nature, and cannot be numbred, by reaſon every figurative action is a ſeveral perception, both ſenſitive and rational; and infinite Matter being in a perpetual motion, there muſt of neceſsity be infinite figures, and ſo infinite perceptions amongſt the infinite parts of Nature.

Q. 6. *Whether there be ſingle Self-knowledges, and ſingle Perceptions in Nature?*

I anſwer: If there can be no ſuch thing as a ſingle part in Nature, there can neither be a ſingle ſelf-knowledg or perception; for body and parts can never be ſeparated from each other, but whereſoever is body, were it an atome, there are parts alſo; and when parts divide from parts, at the ſame time, and by the ſame act, they are joined to other parts; ſo that compoſition and diviſion is done by one act. The like for knowledg: For knowledg, being material, conſiſts of parts; and as it is impoſsible that there can be ſingle parts, or

parts ſubſiſting by themſelves, without reference to each other, or the body of Nature; ſo it is impoſsible that there can be ſingle knowledges. Neither can there be a ſingle magnitude, figure, colour, place, *&c.* but all that is corporeal, has parts; and by reaſon Nature is a ſelf-moving, and ſelf-knowing body, all her parts muſt of neceſsity be ſo too. But particular compoſed figures, and particular degrees of Matter, are not ſingle parts, nor are particular actions ſingle actions, no more then a particular Creature is a ſingle part; for it would be *non*-ſenſe to ſay ſingle compoſitions, and ſingle diviſions; and therefore particular and ſingle are not one and the ſame; and as there can be no ſuch thing as Single in Nature, ſo there can neither be ſingle knowledges and perceptions: Which is well to be obſerved, leſt we introduce a *Vacuum* in Nature, and ſo make a confuſion between her parts and actions.

Q. 7. *How is it poſsible, ſince there is but one Self-knowledg in Nature, as there is but one Self-motion, that there can be a double degree of this Self-knowledg, as alſo a double Perception,* viz. *Rational, and Senſitive?*

I anſwer: As the ſeveral degrees of Matter are not ſeveral kinds of Matter; ſo neither are Rational and Senſitive knowledg ſeveral kinds of Self-knowledges, but onely different degrees of one ſelf-knowledg; for as there is but one Matter, and one Self-motion, ſo there is alſo but one Self-knowledg in Nature; which conſiſts

ſiſts of two degrees, Rational and Senſitive, whereof the rational is the higheſt degree of ſelf-knowledg; for it is a more pure, ſubtile, active and piercing knowledg then the ſenſitive, by reaſon it is not bound to work on and with the inanimate parts of Matter, but moves freely in its own degree, when as the ſenſitive is incumbred with labouring on the inanimate parts of Matter: Indeed, there is as much difference between thoſe two degrees of ſelf-knowledg, as betwixt a chief Architect, Deſigner or Surveigher, and betwixt a Labourer or Workman; for as the Labourer and Surveigher, though they be different particulars, are yet both of one kind, *viz.* Mankind: ſo it is likewiſe with ſelf-knowledg; for were Matter divided into infinite degrees, it would ſtill remain Matter; and though ſelf-motion be divided into infinite degrees of motions, yet it is ſtill but ſelf-motion: The like for ſelf-knowledg: for ſelf-moving matter can but know it ſelf; and as Matter is the ground or conſtitutive Principle of all the parts and figures in Nature (for without matter there could be no parts, and ſo no diviſion) and ſelf-motion is the ground or principle of all particular actions, ſo is ſelf-knowledg the ground of all particular knowledges and perceptions. Again: as one part cannot be another part, ſo neither can one parts knowledg be another parts knowledg; although they may have perceptions of each other: When I ſpeak of parts, I mean not ſingle parts; for there can be no ſuch thing

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as a ſingle part in Nature; but by parts I underſtand particular ſelf-moving figures, whether they be ſuch compoſed figures, as, for diſtinctions ſake, we call finite wholes; as for example, an Animal, a Tree, a Stone, *&c.* or whether they be parts of thoſe finite figures; for it is impoſsible to deſcribe or determine exactly what the parts of Nature are, by reaſon Nature, although it is but one body, yet being ſelf-moving, 'tis divided into infinite figures, which by ſelf-motion are infinitely changed, compoſed, diſſolved, *&c.* which compoſitions and diviſions hinder that there can be no ſingle parts, becauſe no part, though it ſhould be infinitely changed, compoſed and divided, can be ſeparated from the body of Nature, but as ſoon as it is divided from ſuch parts, it is compoſed with other parts; nay, were it poſsible that it might be ſeparated from the body of Nature, it would not be a part then, but a whole; for it would have no reference to the body of Nature: beſides, if it continued body, or matter, it would ſtill have parts; for whereſoever is body, there is a compoſition of parts.

But if any one deſires to know or gueſs at the parts of Nature, he cannot do it better then by conſidering the corporeal figurative motions or actions of Nature; for what we name parts, are nothing but the effects of thoſe figurative motions; ſo that motions, figures and parts, are but one thing: and it is to be obſerved, that in compoſed figures there are interior and exterior parts;

parts; the exterior are thoſe which may be perceived by our exterior ſenſes, with all their proprieties, as colour, magnitude, ſoftneſs, hardneſs, thickneſs, thinneſs, gravity, levity, *&c.* but the interior parts are the interior, natural, figurative motions, which cauſe it to be ſuch or ſuch a part or Creature; as for example, Man has both his interior and exterior parts, as is evident; and each of them has not onely their outward figure or ſhape, but alſo their interior, natural, figurative motions, which did not onely cauſe them to be ſuch or ſuch parts; as for example, a leg, a head, a heart, a ſpleen, a liver, blood, *&c.* but do alſo continue their being; the onely difference is, that thoſe figurative motions, which did firſt form or produce them, afterwards, when they were finiſhed, became retentive motions: By retentive motions, I do not onely mean ſuch as keep barely the parts of the compoſed figures together, but all thoſe that belong to the preſervation and continuance of them; under which are comprehended digeſtive motions, which place and diſplace parts; attractive motions, which draw nouriſhment into thoſe parts; expulſive motions, which expel ſuperfluous and hurtful parts; and many the like: for there are numerous ſorts of retentive motions, or ſuch as belong to the preſervation and continuance of a compoſed figure, as well as there are of creating or producing motions. By which we may plainly ſee, that one figure lies within another;

that is, one corporeal figurative motion is within another, and that the interior and exterior parts or figures of Creatures, are different in their actions; for example, the ebbing and flowing, or the aſcending and deſcending motions of water, are quite different from thoſe interior figurative motions that make it water; the like may be ſaid of Vegetables, Minerals, Animals, and all other ſorts of Creatures; nay, though both the interior and exterior parts, figures or motions do make but one compoſed figure or Creature, as for example, Man; and are all but parts of that ſame figure; yet each being a particular motion, has alſo its peculiar ſelf-knowledg and perception; for the difference of particular knowledges and perceptions depends upon the difference of Natures actions; which as by the diviſion of parts, they cauſe an ignorance between them; ſo by compoſition they cauſe alſo perceptions. I do not mean, an interior or ſelf-ignorance, which cannot be in Nature, by reaſon every part and particle has ſelf-knowledg; but an exterior, that is, an ignorance of forreign parts, figures or actions, although they be parts of one compoſed figure; for the parts of the hand do not know the parts of the ſtomack, and their actions. Neither do I mean an interior ſelf-perception, which can neither be in Nature, becauſe perception preſuppoſes ignorance; and if there cannot be a ſelf-ignorance, there can neither be a ſelf-perception, although there may be an interior ſelf-knowledg; Nor

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is it proper to ſay, a part may perceive it ſelf, or have a perception of it ſelf: But by perception, I mean an exterior or forreign knowledg; that is, a knowledg of other parts, figures, or actions. Theſe perceptions, I ſay, are different, according to the difference of the corporeal figurative motions; for it is impoſsible, that ſuch or ſuch parts ſhould have ſuch or ſuch perceptions, if they have not ſuch or ſuch corporeal motions. Therefore though all parts have ſelf-knowledg, as well as ſelf-motion, yet by reaſon all parts do not move alike, they cannot make the like perceptions; and though ſelf-knowledg, as it is the ground and fountain, not onely of all particular knowledges, but alſo of all exterior perceptions, is but one in it ſelf, as a fixt being, and cannot be divided from its own nature; (for as Matter cannot be divided from being Matter, or ſelf-motion from being ſelf-motion, ſo neither can ſelf-knowledg be divided from being ſelf-knowledg; nor can they be ſeparated from each other, but every part and particle of natural matter has ſelf-knowledg and perception, as well as it hath ſelf-motion) Yet all this hinders not, but there may be degrees of ſelf-knowledg according to the degrees of Matter; for as there is rational and ſenſitive matter, ſo there is alſo rational and ſenſitive ſelf-knowledg; nay, there are infinite particular ſelf-knowledges and perceptions, according to the infiniteneſs of parts and motions; and yet all is but one ſelf-moving and ſelf-knowing Nature; for parts are nothing

nothing elſe but a diviſion of the whole, and the whole is nothing elſe but a compoſition of parts. All which I deſire may be taken notice of, leſt my ſenſe be miſ-interpreted, for when I ſpeak of rational and ſenſitive ſelf-knowledg, I do not mean as if there were more ſelf-knowledg then one in the onely infinite Matter, to wit, a double kind of ſelf-knowledg, but I ſpeak in reference to the parts of Matter; for the rational part is more pure, and ſo more agil, quick and free then the ſenſitive; and the animate part is ſelf-~~know~~*mov*ing, but the inanimate not: and thus in reſpect to parts, as they are divided, ſo they have ſeveral ſelf-knowledges and perceptions, as alſo numerous lives and ſouls in one compoſed figure or Creature; and as infinite parts belong to one infinite whole, ſo infinite ſelf-knowledges and infinite perceptions, belong to the infinite actions of thoſe infinite parts. But ſome may ask, Why there are no more degrees of Matter but two, *viz.* Animate, and Inanimate; and no more degrees of Animate, but Rational, and Senſitive? I anſwer, humane ſenſe and reaſon cannot conceive it poſsible there ſhould be more or fewer; for the rational and ſenſitive are the pureſt degrees Matter can be capable of; and were there any purer then theſe, they would be beyond the nature of Matter; which is impoſsible, becauſe Nature cannot go beyond it ſelf. Again: ſome may perhaps deſire to know, why there are more degrees of Inanimate Matter, then of Animate, to wit, of thickneſs and thinneſs,

thinneſs, rarity and denſity, lightneſs aud heavineſs, *&c* ? I anſwer, Theſe are nothing elſe but the actions of the material parts, and do not belong to the nature of Matter, ſo that they cannot make Parts leſs or more material, for all is but Matter; neither can they alter the nature of Matter; for Matter is ſtill Matter, however it moves. Laſtly, ſome may ask, How it is poſsible, that ſuch an infinite variety can proceed but from two degrees of Matter, to wit, Animate and Inanimate? I anſwer; As well as Infinite effects can proceed from one Infinite cauſe; for Nature being an Infinite body, muſt alſo have Infinite parts; and having an Infinite ſelf-motion, muſt of neceſsity have an infinite variety of parts; and being infinitely ſelf-knowing, muſt alſo have infinite ſelf-knowing parts; which proves, that Natures body muſt of neceſsity conſiſt of thoſe two degrees, *viz.* Animate and Inanimate Matter; for were there no Animate matter, which is corporeal ſelf-motion, there would never be ſuch variety of figures, parts and actions in Nature as there is, nor no perceptions; for Self-knowledg, or Matter, without ſelf-motion, could never make any variety in Nature; and therefore although ſelf-motion cauſes an obſcurity by the diviſion of parts, yet it cauſes alſo particular perceptions between parts; and as the motions vary, ſo do perceptions of parts. In ſhort, there is but one infinite body, and infinite parts; one infinite ſelf-knowledg, and infinite particular ſelf-knowledges; one

infinite ſelf-motion, and infinite particular actions; as alſo infinite particular perceptions: for ſelf-motion is the cauſe of all the variety of Nature; and as one figure or part of Nature lies within another, ſo one perception is within another.

Q. 8. *How can there be Self-knowledg and Perception in one and the ſame part?*

I anſwer: As well as the being or ſubſtance of a thing and its actions can conſiſt together, or as a cauſe and its effects; for though they are ſo far different from each other, that the cauſe is not the effect, nor the effect the cauſe; as alſo that the effect muſt of neceſsity depend upon the cauſe, but the cauſe may chuſe whether it will produce ſuch or ſuch effects; as for example, though action or motion depends upon matter, yet matter does not depend upon motion, as being able to ſubſiſt without it; and though perception depends upon ſelf-knowledg, yet ſelf-knowledg does not depend upon perception; nevertheleſs, whereſoever is perception, there is alſo ſelf-knowledg; by reaſon, that whereſoever there is an effect in act or being, there is alſo its cauſe; and although perception depends alſo upon outward objects, yet outward objects do not depend upon perceptions; but perception, as it depends upon ſelf-knowledg, ſo it depends alſo upon ſelf-motion; for without ſelf-knowledg and ſelf-motion, there would be no perception; ſo that both exterior perceptions, and all interior voluntary actions, proceed from ſelf-knowing

knowing and ſelf-moving matter ; but the difference between particular interior ſelf-knowledges and perceptions, is cauſed by the changes of corporeal, figurative ſelf-motion.

Q. 9. *Whether particular Parts or Figures be bound to particular perceptions ?*

I anſwer : Particular Parts make Perceptions, according to the nature of their corporeal, figurative motions, and their perceptions are as numerous as their actions ; for example, thoſe parts that are compoſed into the figure of an Animal, make perceptions proper to that figures corporeal, interior, natural motions ; but if they be diſſolved from the animal figure, and compoſed into Vegetables, they make ſuch perceptions as are proper for Vegetables ; and being again diſſolved and compoſed into Minerals, they make perceptions proper to Minerals, *&c.* ſo that no part is tied or bound to one particular kind of perception, no more then it is bound to one particular kind of figures ; but when the interior motions of that figure change, the perceptions proper to that ſame figure change alſo ; for though ſelf-knowledg, the ground of all perceptions, is a fixt, and inherent, or innate knowledg, yet the perceptions vary according to their objects, and according to the changes and compoſitions of their own parts ; for as parts are compoſed with parts, ſo are their perceptions ; nay, not onely perceptions, but alſo particular ſelf-knowledges alter according to the alteration

tion of their own parts or figures, not from being ſelf-knowledg, for ſelf-knowledg can be but ſelf-knowledg, but from being ſuch or ſuch a particular ſelf-knowledg; and ſince there is no part or particle of Nature but is ſelf-knowing, or has its particular ſelf-knowledg, it is certain, that as the interior nature of the figure alters by the changes of motion, the interior ſelf-knowledg of that figure alters too; for if a Vegetable ſhould turn into a Mineral, it cannot retain the ſelf-knowledg of a Vegetable, but it muſt of neceſsity change into the ſelf-knowledg of a Mineral; for nothing can have a knowledg of it ſelf otherwiſe then what it is; and becauſe ſelf-knowledg is the ground of Perception, as ſelf-knowledg alters, ſo doth perception; I mean, that kind of perception that belonged to ſuch a figure, alters to another kind of perception proper to another figure; ſo that it is with perception, as it is with other Creatures: For example, as there are ſeveral kinds of Creatures, as Elements, Animals, Minerals, Vegetables, *&c.* ſo there are alſo ſeveral kinds of perceptions, as Animal, Vegetative, Mineral, Elemental perception; and as there are different particular ſorts of theſe mentioned kinds of Creatures, ſo there are alſo of perceptions; nay, as one particular Creature of theſe ſorts conſiſts of different parts; ſo every part has alſo different perceptions; for ſelf-motion, as it is the cauſe of all the various changes of figures and parts of Nature, ſo it is alſo of the variety of perceptions; for put the caſe

Matter

Matter were of one infinite figure, it would have but ſelf-knowledg, or at leaſt no variety of perceptions, becauſe it would have no variety of corporeal figurative motions; and it is well to be obſerved, that although numerous different parts may agree in perception; that is, their ſenſitive and rational figurative motions may all perceive one and the ſame object; yet the manner of their perceptions are different, according to the difference of their figures, or rather of their interior, corporeal, figurative motions: for example, a Man, a Tree, and a Stone, may all have perceptions of one object, but yet their perceptions are not alike; for the Tree has not an Animal or Mineral, but a Vegetative perception; and ſo has the Man, not a Vegetative or Mineral, but an Animal perception; and the Stone, not an Animal or Vegetative, but a Mineral perception, each according to the interior nature of its own figure.

Q. 10. *Whether there could be Self-knowledg without Perception?*

I anſwer: Self-knowledg being the ground of all Perceptions, which are nothing elſe but exterior knowledges, might as well ſubſiſt without them, as Matter would ſubſiſt without Motion; but ſince ſelf-motion is the cauſe of all the various changes of figures and parts, and of all the orderly Productions, Generations, Transformations, Diſſolutions, and all other actions of Nature; Theſe cannot be performed with-

out Perception; for all actions are knowing and perceptive; and were there no perception, there could not poſsibly be any ſuch actions; for how ſhould parts agree either in the generation, compoſition or diſſolution of compoſed figures, if they had no knowledg or perception of each other? Therefore although ſelf-knowledg is a fixt interior Being, and the ground of all perceptions; yet were there no ſelf-motion, there could be no action, and conſequently no perception, at leaſt no variety of perceptions in Nature; but ſince Nature is one ſelf-moving and ſelf-knowing body, ſelf-knowledg can no more be ſeparated from perception, then motion can be divided from matter, but every part and particle of Nature, were it an Atome, as it is ſelf-moving, ſo it is alſo ſelf-knowing and perceptive. But yet it is not neceſſary that Perception muſt onely be betwixt neighbouring or adjoining parts; for ſome parts may very well perceive each other at a diſtance, and when other parts are between; nay, ſome perceptions do require a diſtance of the object, as for example, the optick perception in Animals, as I have declared before *, where I do mention the requiſites of the Animal perception of ſight; whereof if one be wanting, there is either no perception at all, (I mean, no perception of ſeeing in that Animal) or the perception is imperfect. But ſome may ask, Whether, in ſuch a caſe, that is, in the perception of an object which is diſtant from the ſentient, the intermediate parts are as well

* *Part* 1. *c.* 20. Of Colours, *p.* 63.

well perceived as the object it ſelf, to which the perception directy tends? I anſwer: That, if the intermediate parts be ſubject to that kind of perception, they may as well be perceived as the object that is diſtant; nay, ſometimes better; but moſt commonly, the intermediate parts are but ſlightly or ſuperficially perceived: For example, in the forementioned ſenſe of Seeing, if the organ of ſight be directed to ſome certain object that is diſtant, and there be ſome parts between the organ and the object, perceptible by the ſame ſenſe, but ſuch as do not hinder or obſtruct the perception of the ſaid object; not onely the object, but alſo thoſe intermediate parts will be perceived by the optick ſenſe. Alſo if I caſt my eye upon an object that is before me, in a direct line, the eye will not onely perceive the object to which it is chiefly directed, but alſo thoſe parts that are joined to it, either beneath, or above, or on each ſide of that object, at the ſame point of time, and by the ſame act; the ſole difference is, that the ſaid object is chiefly and of purporſe patterned out by the ſenſitive and rational figurative motions of the eye, when as the other intermediate or adjoining parts are but ſuperficially and ſlghtly looked over.

And this proves, firſt, that Nature is compoſed of ſenſitive, rational and inanimate matter, without any ſeparation or diviſion from each other; for could matter be divided into an atome, that very atome would have a compoſition of theſe three degrees of matter;

and

and therefore although the parts of Nature do undergo infinite diviſions and compoſitions, ſo that parts may be compoſed and divided infinite ways; yet theſe three degrees can never be ſeparated or divided from one another, becauſe of their cloſe union and commixture through infinite Nature.

Next it proves, that there can be no ſingle parts in Nature; for what commonly are called parts of Nature, are nothing elſe but changes of motion in the infinite body of Nature; ſo that parts, figures, actions, and changes of motion, are one and the ſame, no more differing from each other, then body, place, magnitude, figure, colour, *&c.* for ſelf-motion is the cauſe of the variety of figures and parts of Nature; without which, although there would nevertheleſs be parts, (for whereſoever is matter or body, there are parts alſo) yet Nature would be but a confuſed heap or Chaos, without the diſtinction of any perfect figures; which figures make perfect perceptions of perfect objects; I ſay, of perfect objects; for if the objects be not perfect, the ſenſitive perceptions can neither be perfect; but then the rational being joined with the ſenſitive, and being more ſubtil, active and piercing, may find out the error either of the object, or ſenſe; for both the rational and ſenſitive parts being united in one figure or action, can more eaſily perceive the irregularities of each others actions, then of exterior objects; all which could not be, were there ſingle parts in Nature,

Nature, neither could ſuch acts be performed by chance or ſenſleſs atomes; nay, could there be any ſingle parts in Nature, there would conſequently be a *Vacuum* to diſcern and ſeparate them from each other, which *Vacuum* would breed ſuch a confuſion amongſt them, as there would be no conformity or ſymmetry in any of their figures. Therefore I am abſolutely againſt the opinion of ſenſeleſs and irrational atomes, moving by chance; for if Nature did conſiſt of ſuch atomes, there would be no certain kinds and ſpecies of Creatures, nor no uniformity or order; neither am I able to conceive how there could be a motion by chance, or an irrational and ſenſeleſs motion, no more then I can conceive how motion can be without matter or body; for ſelf-motion as it is corporeal, ſo it is alſo ſenſitive and rational.

Q. 11. *Whether Perception be made by Patterning?*

I anſwer: My Senſe and Reaſon does obſerve, That the animal, at leaſt humane Perception, performed by the ſenſitive and rational motions in the organs appropriated for it, is made by patterning or framing of figures, according to the patterns of exterior objects; but whether all other kinds and ſorts of perceptions in the infinite parts of Nature be made the ſame manner or way, neither my ſelf, nor no particular Creature is able to determine, by reaſon there are as many various ſorts of perceptions as there are of other actions of Na-

ture, and according as the corporeal figurative motions do alter and change, ſo do particular perceptions; for Perception is a corporeal, figurative action, and is generally in all parts and actions of Nature; and as no part can be without ſelf-motion and ſelf-knowledg, ſo none can be without perception; and therefore I dare truly ſay, that all perceptions are made by figuring, though I cannot certainly affirm, that all are made by imitation or patterning. But it is well to be obſerved, that beſides thoſe exterior perceptions of objects, there are ſome other interior actions both of ſenſe and reaſon, which are made without the preſentation of exterior objects, voluntarily, or by rote; and therefore are not actions of patterning, but voluntary actions of figuring: As for example, Imaginations, Fancies, Conceptions, Paſsions, and the like; are made by the rational, corporeal, figurative motions, without taking any copies of forreign objects; alſo many Generations, Diſſolutions, Alterations, Transformations, *&c.* are made by the ſenſitive motions without any exterior patterns; for the generation of Maggot in a Cheeſe, of a Worm in the root of a Tree, of a Stone in the Bladder, *&c.* are not made by patterning or imitation, becauſe they are not like their producers, but meerly by a voluntary figuring; and therefore it is well to be obſerved, that figuring and patterning are not one and the ſame; figuring is a general action of Nature: for all corporeal actions are figurative, when as patterning is but a particular

ticular ſort of figuring; and although I obſerve, that ſome perceptions are made by patterning, yet I cannot ſay the ſame of all; neither are the interior voluntary actions made by patterning, but both the ſenſitive and rational motions frame ſuch or ſuch figures of their own accord; for though each part in the compoſition of a Creature knows its own work, and all do agree in the framing and producing of it; yet they are not neceſsitated always to imitate each other; which is evident, becauſe the compoſition of one and the ſame Creature is various, and different by reaſon of the variety of its parts.

And this is the difference between exterior perceptions, and interior voluntary actions; for though both are effects of ſelf-knowledg and ſelf-motion, yet perceptions are properly concerning forreign parts, figures and actions, and are occaſioned by them; but the voluntary actions are not occaſioned by any outward objects, but make figures of their own accord, without any imitation, patterns or copies of forreign parts or actions; and as the figures and parts alter by their compoſitions and diviſions, ſo do both interior and exterior particular knowledges; for a Tree, although it has ſenſitive and rational knowledg and perception, yet it has not an animal knowledg and perception; and if it ſhould be divided into numerous parts, and theſe again be compoſed with other parts, each would have ſuch knowledge and perception as the nature of their

figure

figure required; for ſelf-knowledg alters, as their own parts alter; perception alters as the objects alter; figures alter as the actions alter; and the actions alter as Nature pleaſes, or is decreed by God to work.

But I deſire it may be obſerved, firſt, That although there are both voluntaay actions of figuring, and occaſioned actions of perceiving exterior objects, both in ſenſe and reaſon, whereof thoſe I call interior, theſe exterior; yet both of them are innate and inherent actions of their own parts, as proceeding from the ground and fountain of ſelf-knowledg; and the reaſon why I call the voluntary actions interior, is, becauſe they have no ſuch reſpect to outward objects, at leaſt are not occaſioned by them as perceptions are, but are the own figurative actions of ſenſe and reaſon made by rote; when as perceptions do tend to exterior objects, and are made according to the preſentation of their figures, parts or actions.

Next, It is to be obſerved, That many times the rational motions take patterns from the ſenſitive voluntary figures; As for example, in Dreams, when the ſenſitive motions make voluntary figures on the inſide of the ſenſitive organs, the rational take patterns of them, and again the ſenſitive do many times take patterns of the rational when they make figures by rote, as in the invention and delivery of Arts and Sciences; ſo that there is oftentimes an imitation between the rational and ſenſitive motions; for the rational voluntary figures,

figures, are like exterior objects, to be patterned out by the ſenſitive perceptive motions; and the ſenſitive voluntary figures, are like exterior objects, to be patterned out by the rational perceptive motions; and yet all their perceptive actions are their own, and performed inwardly, that is, by their own motions: Which proves, that by naming Perception an exterior action, I do not mean that it is an action exterioufly perceptible or viſible; for if it were thus, then one part would preſently know another parts perception, when and how it perceives; which we find it does not; for although a man perceives a Tree, or Stone, yet he does not know whether the Tree or Stone perceives him, much leſs what perceptions they make: but, as I ſaid before, Perception I name an exterior action, becauſe it is occaſioned by an object that is without the perceiving parts; for although both ſenſitive and rational perception are ſo cloſely intermixt, that none can be without the other in every part or particle of Nature, were it no bigger then what is call'd an Atome; yet conſidered in themſelves, they are without each other ſo far, that the rational perceptive part is not the ſenſitive, nor the ſenſitive the rational; or elſe they would not be ſeveral parts or actions, neither would there be any imitation betwixt them.

Laſtly, I deſire that notice may be taken, when I ſay that every action of Nature is perceptive; for ſince there are no ſingle parts in Nature, but what-

ſoever is body, conſiſts of parts; there can neither be any ſuch thing as a ſingle action, that is an action of a ſingle part; but in all natural actions there is a commerce, entercourſe, or agreement of parts; which entercourſe or agreement, cannot be without perception or knowledg of each other; Wherefore it muſt of neceſſity follow, that every action is perceptive, or that perception between parts is required in every action of Nature; nay, even in thoſe which are called voluntary actions; for though the rational and ſenſitive parts of a compoſed figure, can make voluntary figures within themſelves, without taking any patterns of forreign objects; yet thoſe parts muſt needs know and perceive each other even in the compoſition or framing of their voluntary figures; ſo that exterior knowledg or perception, is as univerſal as ſelf-motion; for whereſoever is ſelf-motion, there is perception alſo. But it is well to be obſerved, firſt, That Perception or Perceptive knowledg is onely between Parts; Next, That although every action in Nature is perceptive, yet not every action is the action of Perception properly ſo called; which Perception, in compoſed figures, at leaſt in Animals, is an action of patterning out exterior parts or objects, performed by the rational and ſenſitive corporeal figurative motions in their proper organs; But there are Infinite other actions, which although they require perceptive parts, yet they are not ſuch actions of Perceptions as are made by Patterning out, or imitating outward

ward objects; As for example, Reſpiration, Digeſtion, Contraction, Dilation, Expulſion, Generation, Retention, Diſſolution, Growth, Decay, *&c.* Nevertheleſs, all thoſe actions are perceptive; that is, the parts which perform thoſe actions have perception of each other, or elſe they would never agree to produce ſuch effects. The truth is, that even the action of Perception properly ſo called, preſuppoſes many particular perceptions between thoſe parts that concur to the performance of that act; for it is impoſsible, that both the rational and ſenſitive parts in a compoſed figure, ſhould make the act of Perception, without they know and agree what they are to do, and how they are to perform it, as I mentioned before. And this is the reaſon, that I have made * a difference between Perception and Reſpiration, and called them different actions; not as if Reſpiration was not a perceptive action, or preſuppoſes not knowledg and perception between thoſe parts that make reſpiration; but it is not the action of Perception properly ſo called; as for example, the perception of Seeing, Hearing, Smelling, Taſting, *&c.* in Animals, but it is properly an action of drawing, ſucking, breathing in, or receiving any ways outward parts; and of venting, diſcharging or ſending forth inward parts: nevertheleſs, all this cannot be done without perception or knowledg, no more then without motion; for whereſoever is motion, there is perception alſo; and therefore Reſpiration is a perceptive

* N. 5. *of Ports.*

perceptive action. In ſhort, I deſire it may be obſerved, 1. That there is Perception in every action, but that not every Perception is made by patterning. 2. That all ſelf-moving parts are perceptive. 3. That Perception, Perceptive knowledg, and Exterior knowledg are all one thing, and that I take them indifferently. 4. That all voluntary actions, both of ſenſe and reaſon, are made by perceptive parts; and therefore when I make a diſtinguiſhment between voluntary actions, and perceptions; I mean the perceptions of a compoſed figure, and not the particular perceptive knowledges between thoſe parts that join in the act of ſuch Perceptions, or in the making of voluntary figures.

But it may be objected, That if all motions be perceptive, they would be wholly imployed in nothing elſe but in making copies of exterior parts or objects.

My anſwer is, Although I ſay, that all motions are perceptive; yet I do not poſitively affirm, that all perceptions in Nature are made by Patterning or Imitation; for we are to conſider, that there are as many different ſorts of perceptions, as there are of motions; becauſe every particular motion has a particular perception; and though in a compoſed figure or Creature, ſome motions may work to the paterning out of exterior objects, yet all the reſt may not do ſo, and be nevertheleſs perceptive; for like as a Man, or any other animal Creature, is not altogether compoſed of Eyes, Eares, Noſes, or the like ſenſitive organs; ſo not all perceptive

perceptive motions are imitating or patterning, but ſome are retentive, ſome expulſive, ſome attractive, ſome contractive, ſome dilative, ſome creating or producing, ſome diſſolving, ſome imitating or patterning, and ſo forth; and as there are degrees of parts and motions, ſo ſome perceptions may be ſo much purer, finer, and ſubtiler then others, as much as pure Air is beyond groſs Earth. The truth is, we cannot judg of Natures actions any otherways then we obſerve them by our own ſenſitive and rational perceptions; and ſince we find that the ſenſitive and rational motions in our ſenſitive organs do work by the way of patterning or imitation; we may ſurely conclude, that ſome perceptions are made that way; but that all other perceptions in all natural parts or Creature ſhould be after the ſame manner, would be too preſumptuous for any particular Creature to affirm, ſince there are infinite ſeveral ſorts of perceptions; and although we may juſtly and with all reaſon believe, that all parts of Nature are perceptive, becauſe they are ſelf-moving and ſelf-knowing; yet no particular Creature is able to judg how, and in what manner they perceive, no more then it can know how they move. And by this it is evident, how in one and the ſame organ of the eye, ſome motions or parts may work to the act of perception, properly ſo called, which is made by patterning out the figure of an exterior object; and other motions or parts may work to the retention of the eye, and preſerving it in its being:

others again may work to its ſhutting and opening, and others to its reſpiration, that is, venting of ſuperfluous, and receiving of nouriſhing parts, which motions are properly ſubſervient to the retentive motions, and hundreds the like; and yet all theſe motions are as knowing and perceptive after their way, as thoſe that work to the act of Perception, properly ſo called, that is, to the act of ſeeing, made by patterning or imitation. But it is well to be obſerved, That although the eye has the quickeſt action in the Perception of ſeeing; yet is this action moſt viſible, not onely by its motions, but by the figures of the objects that are repreſented in the eye; for if you look into anothers eye, you will plainly perceive therein the picture of your own figure; and had other objects but ſuch an optick perception as Animals, they would, without queſtion, obſerve the ſame. Some will ſay, Thoſe figures in the Eye are made by reflection; but reflections cannot make ſuch conſtant and exact patterns or imitations; Others believe it proceeds from preſſure and reaction; but preſſure and reaction being but paticular actions, cannot make ſuch variety of figures. Others again ſay, That the ſpecies of the objects paſs from the objects to the optick organ, and make figures in the air; but then the multitude of thoſe figures in the air would make ſuch a confuſion, as would hinder the ſpecies's paſsing through; beſides, the ſpecies being corporeal, and proceeding from the object, would leſſen its quantity or bulk. Wherefore

fore my opinion is, that the moſt rare and ſubtileſt parts in the animal ſenſitive organs, do pattern out the figures of exterior objects, and that the perception of the exterior animal ſenſes, to wit, ſight, hearing, taſting, touching, ſmelling; is certainly made by no other way, then by figuring and imitation.

Q. 12. *How the bare patterning out of the Exterior figure of an object, can give us an information of its Interior nature?*

My anſwer is, That although our ſenſitive Perception can go no further then the exterior ſhape, figure and actions of an object; yet the rational being a more ſubtil, active and piercing Perception, by reaſon it is more free then the ſenſitive, does not reſt in the knowledg of the exterior figure of an object, but by its exterior actions, as by ſeveral effects, penetrates into its interior nature, and doth probably gueſs and conclude what its interior figurative motions may be; for although the interior and exterior actions of a compoſed figure be different, yet the exterior may partly give a hint or information of the interior; I ſay, partly, becauſe it is impoſsible that one finite particular Creature ſhould have a perfect knowledg or perception of all the interior and exterior actions of another particular Creature; for example, our ſenſitive Perception patterns out an Animal, a Mineral, a Vegetable, *&c.* we perceive they have the figure of fleſh, ſtone, wood, *&c.* but yet we do not know what is the cauſe of their being ſuch

ſuch figures; for the interior, figurative motions of theſe Creatures, being not ſubject to the perception of our exterior ſenſes, cannot exactly be known; nevertheleſs, although our exterior ſenſes have no perception thereof, yet their own parts which are concern'd in it, as alſo their adjoining or neighbouring parts may: For example, a man knows he has a digeſtion in his body; which being an interior action, he cannot know by his exterior ſenſes how it is made; but thoſe parts of the body where the digeſtion is performed, may know it; nay, they muſt of neceſsity do ſo, becauſe they are concerned in it, as being their proper imployment: The ſame may be ſaid of all other particular parts and actions in an Animal body, which are like ſeveral workmen, imployed in the building of a houſe; for although they do all work and labour to one and the ſame end, that is, the exſtruction of the houſe; and every one may have ſome inſpection or perception of what his neighbour doth; yet each having his peculiar task and employment, has alſo its proper and peculiar knowledg how to perform his own work; for a Joiner knows beſt how to finiſh and perfect what he has to do, and ſo does a Maſon, Carpenter, Tiler, Glaſier, Stone-cutter, Smith, *&c.* And thus it is with all compoſed figures or Creatures; which proves, That Perception has onely a reſpect to exterior parts or objects; when as ſelf-knowledg is an interior, inherent, inate, and, as it were, a fixt being; for it is the ground

ground and fountain of all other particular knowledges and perceptions, even as ſelf-motion is the cauſe and principle of all other particular actions; and although ſelf-knowledg can be without perception, yet perception cannot be without ſelf-knowledg; for it has its being from ſelf-knowledg, as an effect from its cauſe; and as one and the ſame cauſe may produce numerous effects, ſo from one ſelf-knowledg proceed numerous perceptions, which do vary infinitely, according to the various changes of corporeal ſelf-motion. In ſhort, ſelf-knowledg is the fundamental cauſe of perception, but ſelf-motion the occaſional cauſe; Juſt like Matter and ſelf-motion are the cauſes of all natural figures; for though Perception could not be without ſelf-knowledg, yet were there no ſelf-motion, there would be no variety of figures, and conſequently not exterior objects to be perceived.

Q: 13. *How is it poſsible, that ſeveral figures can be patterned out by one act of Perception? for example, how can a man, when he ſees a ſtatue or a ſtone, pattern out both the exterior ſhape of the ſtatue, the matter which the ſtatue is made of, and its colour, and all this by one and the ſame act?*

I anſwer, Firſt it is to be obſerved, That Matter, Colour, Figure, Magnitude, *&c.* are all but one thing, and therefore they may eaſily be patterned out by one act of Perception at one and the ſame time. Next, I ſay, That no ſenſe is made by one ſingle part, but every ſenſe conſiſts of ſeveral parts, and therefore

the perception of one ſenſe may very well pattern out ſeveral objects at once; for example, I ſee an embroidred bed; my eye patterns out both the Velvet, Gold, Silver, Silk, Colour, and the Workmanſhip, nay, ſuperficially the figure of the whole Bed, and all this by one act, and at one the ſame time. But it is to be obſerved, That one object may have ſeveral proprieties, which are not all ſubject to the perception of one ſence; as for example, the ſmell of an odoriferous body, and its colour, are not ſubject to the ſame ſenſe; neither is the hardneſs or ſoftneſs, roughneſs or ſmoothneſs of its parts, ſubject to the ſenſe of ſmelling or ſeeing, but each is perceived by ſuch a ſenſe as is proper for ſuch a ſort of Perception. Nevertheleſs, theſe different perceptions do not make them to be different bodies; for even one and the ſame attribute or propriety of a body may be patterned out by ſeveral ſenſes; for example, Magnitude or ſhape of body may be patterned out both by ſight and touch: which proves, that there is a near affinity or alliance betwixt the ſeveral ſenſes, and that Touch is, as it were a general ſenſe, which may imitate ſome other ſenſitive perceptions. The truth is, it is as eaſie for ſeveral ſenſes to pattern out the ſeveral proprieties of one body, as it is for ſeveral Painters to draw the ſeveral parts of one figure; as for example, of a burning Candle, one may draw the wax or tallow, another the wick, another the flame: The like for the Perceptions of ſeveral

veral ſenſes; Sight may pattern out the figure and light of a Candle; Touch may pattern out its weight, hardneſs or ſmoothneſs; the Noſe may pattern out its ſmell; the Ears may pattern out its ſparkling noiſe, *&c.* All which does evidently prove, That Perception cannot be made by preſſure and reaction; or elſe a fire coal by the perception of ſight, would burn out the eye, becauſe it would by preſſure inflame its next adjoining parts, and theſe again the next, until it came to the eye. Beſides, it proves that all objects are material; for were Light, Colour, Figure, Heat, Cold, *&c.* immaterial, they would never be patterned out by corporeal motions; for no Painter is able to copy out, or draw an immaterial mode or motion; Neither could immaterial motions make preſſure, nor be ſubject to reaction. Laſtly, it proves, That Perception is an effect of knowledg in the ſentient, and not in the external object; or elſe there would be but one knowledg in all parts, and not ſeveral knowledges in ſeveral parts; whereof ſenſe and reaſon inform us otherwiſe, *viz.* that particular figures have variety of knowledges, according to the difference and variety of their corporeal figurative motions.

But then ſome will ſay, That the actions of Matter would be more infinite then the parts. I anſwer; There can be neither more nor leſs in infinite: For infinite can be but infinite; but ſince parts, figures, changes of motion and perceptions, are one and the ſame; and

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ſince diviſion and compoſition are the chief actions of Nature, it does neceſſarily follow, That as the actions vary, ſo do alſo their parts and particular perceptions.

Q. 14. *How is it poſſible that any Perception of outward objects can be made by patterning, ſince patterning doth follow perception; for how can any one pattern out that which he has no perception of?*

I anſwer: Natural actions are not like Artificial; for Art is but groſs and dull in compariſon to Nature; and although I alledg the compariſon of a Painter, yet is it but to make my meaning more intelligible to weaker capacities; for though a Painter muſt ſee or know firſt what he intends to draw or copy out; yet the natural perception of exterior objects is not altogether after the ſame manner; but in thoſe perceptions which are made by patterning, the action of patterning, and the perception, are one and the ſame; for as ſelf-knowledg is the ground of Perception, ſo ſelf-motion is the action of Perception, without which no perception could be, and therefore perception and ſelf-action are one and the ſame. But I deſire, that it may well be obſerved what I have mentioned heretofore, to wit, That although there is but one ſelf-knowledg, and one ſelf-motion in Nature, yet they being material, are divideable; and therefore as from one infinite cauſe, there may flow infinite effects, and one infinite whole may be divided into infinite parts; ſo from one infinite ſelf-knowledg

knowledg and ſelf-motion there may proceed infinite particular actions and perceptions.

But ſome may perhaps ask, 1. Why thoſe particular knowledges and perceptions are not all alike, as being all but effects of one cauſe? To which I anſwer, That if the actions or motions of Nature were all alike, all parts would have the like knowledges and perceptions; but the actions being different, how can it be otherwiſe, but the perceptions muſt be different alſo? for ſince every perception is a particular ſelf-action, then as the actions of Nature vary, and as parts do divide and compoſe, ſo are likewiſe their perceptions.

2. It may be objected, That if the Perception of the exterior ſenſes in animals be made by the way of patterning, then when a part of the body feels pain, the rational motions by patterning out the ſame, would be pained, or ſick.

I anſwer: This does no more follow, then that the Eye patterning out the exterior figure of Water, Fire, Earth, *&c.* ſhould become of the ſame nature; for the original is one thing, and the copy another: the picture of a houſe of ſtone, is not made of natural ſtone, nor is the picture of a Tree, a natural Tree; for if it were ſo, Painters would do more then Chymiſts by fire and furnace; but by reaſon there is a very cloſe conjunction between the rational and ſenſitive perceptive motions, ſo that when the ſenſitive motions of the body pattern out ſome exterior object, the rational

moſt commonly do the ſame; That which we call pain or ſickneſs in the body, when patterned out by the mind, is called trouble, or grief; for as there are degrees in their purity, ſubtilty and activity, ſo their perceptions are alſo different. But it is well to be obſerved, That although ſome parts are ignorant of others, when they work not to one and the ſame perception, yet ſometimes there is a more general knowledg of a diſeaſe, pain, or ſoreneſs; for example, a man may have an inflamation or ſoreneſs in one part of his arm or leg, and all the reſt of the parts of that limb may be ignorant thereof; but if the inflamation, ſoreneſs or pain, extend throughout the whole arm or leg, then all the parts of that limb are generally ſenſible of it.

3. It may be objected, That if the rational perceptive motions take patterns from the ſenſitive, then reaſon can never judg of things as naturally they are, but onely of their copies, as they are patterned out by the ſenſitive motions.

I anſwer, firſt, That reaſon is not ſo neceſsitated, as to have no other perception then what ſenſe preſents; for Reaſon is the inſtructer and informer of ſenſe, as an architect or ſurveigher is in the extruction of a houſe. Next, I ſay, That in the act of Perception, Reaſon doth not onely perceive the copies of the ſenſes, but it perceives with the ſenſe alſo the original; for ſurely the rational part of Matter, being intermixed with the ſenſitive, muſt perceive as well the original, as ſenſe doth;

doth; for it is not ſo involved within the ſenſitive, that it cannot peep out, as a Jack-in-a-Box; but both being cloſely intermixed, one makes perceptions as well as the other, as being both perceptive; and by reaſon the rational part makes the ſame perception as the ſenſitive doth, it ſeemeth as if the rational did take copies from the ſenſitive; which although it doth, yet this doth not hinder it from making a perception alſo of the original.

But then ſome may ſay, if the rational Part has liberty to move as it will, then it may perceive without ſenſe; that is, Reaſon may make perceptions of outward objects in the organs of the ſenſes, when the ſenſes make none; as for example, the rational motions in the eye may perceive light, when the ſenſitive do not; and ſound in the ear, when the ſenſitive do not.

To which I anſwer; 'Tis probable, that the rational do many times move to other perceptions then the ſenſitive; as I have often declared; but if their actions be orderly and regular, then moſt commonly they move to one and the ſame perception; but reaſon being the purer and freer part, has a more ſubtil perception then ſenſe; for there is great difference between ſenſe and reaſon, concerning the ſubtilty of their actions; ſenſe does perceive, as it were, in part, when as reaſon perceives generally, and in whole; for if there be an object which is to be patterned out with all its proprieties, the colour of it is perceived onely by ſight; the

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ſmell of it is perceived by the Noſe; its Sound is perceived by the Ear, its taſte is perceived by the Tongue, and its hardneſs or ſoftneſs, coldneſs or heat, dryneſs or moiſture, is perceived by Touch; ſo that every ſenſe in particular, patterns out that object which is proper for it; and each has but ſo much knowledg of the ſaid object as it patterns out; for the ſight knows nothing of its taſte, nor the taſte of its touch, nor the touch of its ſmell; and ſo forth: But the mind patterns out all thoſe figures together, ſo that they are but as one object to it, without diviſion: which proves, that the rational perception, being more general, is alſo more perfect then the ſenſitive; and the reaſon is, becauſe it is more free, and not incumbred with the burdens of other parts; Wherefore the rational can judg better of objects then the ſenſitive, as being more knowing; and knows more, becauſe it has a more general perception; and hath a more general perception, becauſe it is more ſubtile and active; and is more ſubtil and active, becauſe it is free, and not neceſsitated to labour on, or with any other parts.

But ſome may ſay, How is it poſsible, that the rational part, being ſo cloſely intermixed with the ſenſitive and the inanimate, can move by it ſelf, and not be a labourer, as well as the ſenſitive?

I anſwer: The reaſon is, becauſe the rational part is more pure and finer then the ſenſitive, or any other part of Matter; which purity and fineneſs makes that

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it is ſo ſubtile and active, and conſequently not neceſſitated to labour with, or on other parts.

Again: Some may ask, Whether thoſe intermixed parts continue always together in their particulars? as for example, whether the ſame rational parts keep conſtantly to the ſame ſenſitive and inanimate parts, as they are commixed?

I anſwer: Nature is in a perpetual motion, and her parts are parts of her own ſelf-moving body; wherefore they muſt of neceſsity divide and compoſe; but if they divide and compoſe, they cannot keep conſtantly to the ſame parts. Nevertheleſs, although particular parts are divideable from each other, yet the Triumvirate of Nature, that is, the three chief degrees or parts of Matter, to wit, rational, ſenſitive and inanimate, which belong to the conſtitution of Nature, cannot be ſeparated or divided from each other in general; ſo that rational matter may be divided from ſenſitive and inanimate, and theſe again from the rational, but they muſt of neceſsity continue in this commixture as long as Nature laſts. In ſhort, rational, ſenſitive and inanimate Matter are divideable in their particulars; that is, ſuch a particular part of inanimate Matter is not bound to ſuch a particular part of ſenſitive or rational Matter, *&c.* but they are individeable in general, that is, from each other; for whereſoever is body, there is alſo a commixture of theſe three degrees of Matter.

4. Some may ſay, How is it poſsible, That Rea-

ſon can be above Senſe; and that the rational perception is more ſubtile and knowing then the ſenſitive; ſince in my *Philoſophical Opinions*, I have declared that the ſenſitive perception doth inform the rational: or that Reaſon perceives by the information of the ſenſes?

To which I anſwer: My meaning is not, that Reaſon has no other perception, but by the information of the ſenſes; for ſurely the rational perception is more ſubtile, piercing and penetrating, or inſpective, then the ſenſitive, and therefore more intelligent and knowing; but when I ſay, that ſenſe informs reaſon, I ſpeak onely of ſuch perceptions where the rational figurative motions take patterns from the ſenſitive, and do not work voluntarily, or by rote.

Beſides, It is to be obſerved, That in the mentioned Book, I compare Thoughts, which are the actions of the rational figurative motions, to the ſenſitive Touch; ſo that Touch is like a Thought in ſenſe, and Thought like a Touch in reaſon: But there is great difference in their purity; for though the actions of Touch and Thought are much after the ſame manner, yet the different degrees of ſenſe and reaſon, or of animate, ſenſitive and rational matter, cauſe great difference between them; and as all ſenſitive perception is a kind of touch, ſo all rational perception is a kind of thoughtfulneſs: But miſtake me not when I ſay, Thought is like Touch; for I do not mean, that the rational perception is cauſed by the conjunction or joining of one part to another,

other, or that it is an exterior touch, but an interior knowledg; for all ſelf-knowledg is a kind of thoughtfulneſs, and that Thought is a rational Touch, as Touch is a ſenſitive Thought; for the exterior perceptions of reaſon reſemble the interior actions or knowledg of ſenſe. Neither do I mean, that the perception of touch is made by preſſure and reaction, no more then the perception of ſight, hearing, or the like; but the patterns of outward objects being actions of the body ſentient, are, as it were, a ſelf-touch, or ſelf-feeling, both in the ſenſitive and rational perceptions. Indeed that ſubtile and learned Philoſopher, who will perſwade us that Perception is made by preſſure and reaction, makes Perception onely a fantaſme: For, ſays he, *Reaction makes a Fantaſme, and that is Perception.*

5. Some perhaps will ſay, That if the Perception of the exterior animal ſenſes be made by Patterning, then that animal which hath two or more eyes, by patterning out an exterior object, will have a double or trebble perception of it, according to the number of its eyes.

I anſwer: That when the corporeal motions in each eye move irregularly; as for example, when one eye moves this, and the other another way, or when the eyes look aſquint; then they do not pattern out the object directly as they ought; but when the eyes move regularly, then they pattern out one and the ſame object alike, as being fixt but upon one point; and the proof thereof is, if there be two eyes, we may obſerve that both

both have their perceptions apart, as well as jointly; becauſe thoſe parts that are in the middle of each eye, do not make at the ſame time the ſame perceptions with thoſe that are the ſide or extream parts thereof, but their perceptions are different from each other: For example, the eyes of a Man, or ſome other Animal, pattern out a Tree which ſtands in a direct line oppoſite to them; but if there be Meadows or Hedges on each ſide of the Tree, then the extream or ſide parts of each eye pattern out thoſe meadows or hedges; for one eyes perception, is not the other eyes perception; which makes them perceive differently, when otherwiſe they would perceive both alike. But if a thouſand eyes do perceive one object juſt alike, then they are but as one eye, and make but one perception; for like as many parts do work or act to one and the ſame deſign; ſo do ſeveral corporeal motions in one eye, pattern out one object; the onely difference is, that, as I ſaid, every eye is ignorant of each others perception.

But, you'l ſay, There are ſo many copies made, as there are objects.

I anſwer, 'Tis true: But though there are many compoſed parts which join in the making of one particular perception; yet if they move all alike, the perception is but one and the ſame: for put the caſe there were a hundred thouſand copies of one original; if they be all alike each other, ſo as not to have the leaſt difference betwixt them; then they are all but as one Picture of one

one Original; but if they be not alike each other, then they are different Pictures, becauſe they repreſent different faces. And thus for a matched pair of eyes in one Creature; if they move at the ſame point of time, directly to one and the ſame parts, in the ſame deſign of patterning out one and the ſame object; it ſeems but as one act of one part, and as one perception of one object.

Q. 15. *How comes it, that ſome parts, for all they are Perceptive, can yet be ſo ignorant of each other, that in one compoſed figure, as for example, in the finger of a Man's hand, they are ignorant of each other; when as other parts do make perceptions of one another, at a great diſtance, and when other parts are between?*

I anſwer: This queſtion is eaſily reſolved, if we do but conſider, that the differerence of Perception depends upon the difference of the corporeal figurative motions; for if the parts be not the ſame, the perceptions muſt needs be different; nay, there may infinite ſeveral perceptions be made by one and the ſame parts, if Matter be eternal, and perpetually moving. And hence it follows, that ſome parts may make perceptions of diſtant parts, and not of neighbouring parts; and others again may make perceptions of neighbouring or adjoining parts, and not of thoſe that are diſtant: As for example, in the animal Perception, taſte and touch are onely perceptions of adjoining objects, when as ſight and hearing do perceive at a

diſtance; for if an object be immediately joined to the optick ſenſe, it quite blinds it. Wherefore it is well to be obſerved, that there are ſeveral kinds and ſorts of Perceptions, as well as of other compoſed figures: As for example, there are Animals, Vegetables, Minerals, and Elements; and theſe comprehend each ſeveral particular kinds of Animals, Vegetables, Minerals, *&c.* Again, theſe particular kinds are divided into ſeveral ſorts, and each of them contains ſo many particulars; nay, each particular has ſo many different parts, of which it conſiſts, and each part has its different particular motions. The ſame may be ſaid of Perceptions: For as the ſeveral compoſitions of ſeveral parts are, ſo are they: not that the bare compoſition of the parts and figures is the cauſe of Perception; but the ſelf-knowing and ſelf-moving parts compoſe themſelves into ſuch or ſuch figures; and as there are proprieties belonging to ſuch compoſitions, ſo to ſuch compoſed perceptions; ſo that the compoſed parts at the end of a finger, may not have the ſame perceptions with the middle parts of the ſame finger.

But ſome may ſay, If there be ſuch ignorance between the parts of a compoſed figure, How comes it, that many times the pain of one particular part, will cauſe a general diſtemper throughout all the body?

I anſwer; There may be a general perception of the irregularities of ſuch particular compoſed parts in the other parts of the body, although they are not irregular themſelves;

themſelves; for if they had the ſame compoſitions, and the ſame irregularities as the diſtempered parts, they would have the ſame effects; that is, pain, ſickneſs, or numbneſs, *&c.* within themſelves; but to have a perception of the irregularities of other parts, and to be irregular themſelves, are different things. Nevertheleſs, ſome parts moving irregularly, may occaſion other parts to do the ſame. But it is well to be obſerved, That adjoining parts do not always imitate each other, neither do ſome parts make perceptions of forreign objects ſo readily as others do; as for example, a man plays upon a Fiddle, or ſome other inſtrument, and there are hundreds, or more to hear him; it happens oft, that thoſe at a further diſtance do make a perfecter perception of that ſound, then thoſe which are near; and oftentimes, thoſe that are in the middle, as between thoſe that are neareſt, and thoſe that are furtheſt off, may make a perfecter perception then all they; for though all parts are in a perpetual motion, yet all parts are not bound to move after one and the ſame way; but ſome move ſlower, ſome quicker, ſome livelier, ſome duller; and ſome parts do move ſo irregularly as they will not make perceptions of ſome objects, when as they make perceptions of others; and ſome will make perfect perceptions of one and the ſame objects at ſome times, and not at other times: As for example, ſome men will hear, ſee, ſmell, taſte, *&c.* more perfectly at ſome, then at other times. And

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thus to repeat what I ſaid before, The ſeveral kinds, ſorts and particulars of Perceptions, muſt well be conſidered; as alſo, that the variety of Nature proceeds but from one cauſe, which is ſelf-knowing and ſelf-moving Matter.

Q. 16. *Why a Man's hand, or any other part of his body, has not the like Perception as the eye, the ear, or the noſe,* &c. *becauſe there are ſenſitive and rational motions in all the parts of his body?*

I anſwer: The reaſon why the ſame perception that is within the eye cannot be in the hand, or in any other part of a mans body, is, that the parts of the hand are compoſed into another ſort of figure then the eyes, ears, noſe, *&c.* are; and the ſenſitive motions make perceptions according to the compoſitions of their parts; and if the parts of the hand ſhould be divided and compoſed with other parts, into another figure; as for example, into the figure of an eye, or ear, or noſe; then they would have the perception of ſeeing, hearing and ſmelling; for perceptions are according to the compoſition of parts, and the changes of Natures ſelf-motions.

But then ſome will ſay, perhaps, That an Artificial eye, or ear, will have the ſame perceptions, *&c.* being of the ſame figure.

I anſwer: That if its interior nature, and the compoſition of its parts were juſt the ſame as its exterior figure; as for example, if an artificial eye, or ear, were of animal

animal fleſh, and the like; it would have the like perception, otherways not.

Q. 17. *How do we perceive Light, Fire, Air, &c?*

I anſwer: By their exterior figures, as we do other objects: As for example, my Eye patterns out the exterior figure of Light, and my Touch patterns out the exterior figure of Heat, *&c.*

But then you will ſay, If the Eye did pattern out the figure of Light, it would become Light it ſelf; and if Touch did pattern out the figure of Heat, it would become Fire.

I anſwer: No more then when a Painter draws Fire or Light, the copy ſhould be a natural Fire or Light. For there is difference betwixt the copy, and the original: and it is to be obſerved, that in the Perception of ſenſe, eſpecially of ſight, there muſt be a certain diſtance betwixt the object, and the ſentient parts; for the further thoſe are from each other, the weaker is the perception, by reaſon no corporeal figurative motion is infinite, but finite; and therefore it can have but ſueh a degree of power, ſtrength, or activity as belongs to ſuch a figurative action, or ſuch a part or degree of Matter. But as for Fire and Light, it is a certain and evident proof, that ſome perceptions, at leaſt thoſe of the exterior animal ſenſes, are made by patterning; for though the nature of Fire and of Light (for any thing we know) be aſcending, yet if Fire be made in ſuch a manner, that ſeveral may ſtand about,

underneath, and above it; yet they all have the perception of the heat of fire, in what place ſoever, provided they ſtand within a limited or determinate compaſs of it: I ſay, of the heat which is the effect of fire; for that is onely patterned out, and not the ſubſtance of the flame or fire it ſelf: But on the contrary, if the heat of the fire did actually and really ſpread it ſelf out to all the places nominated, as well downwards, upwards and ſideways; then certainly it would be waſted in a little time, and leave its cauſe, which is the fire, heatleſs. Beſides, that there are Copies and Originals, and that ſome perceptions are made by patterning, is evident by the appearance of one Candle in ſeveral diſtances, which ſeveral appearances can be nothing elſe, but ſeveral copies of that Candle made by thoſe parts that take patterns from the Original; which makes me alſo believe, that after the ſame manner, many Stars which we take for Originals, may be but ſo many copies or patterns of one Star, made by the figurative motions of thoſe parts where they appear.

Q. 18. *Whether the Optick Perception is made in the Eye, or Brain, or in both?*

I anſwer: The perception of Sight, when awake, is made on the outſide of the Eye, but in ſleep on the inſide; and as for ſome ſorts of Thoughts or Conceptions, which are the actions of reaſon, they are to my apprehenſion made in the inner part of the head, although I am not able to determine properly what part

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it is; for all the body is perceptive, and has ſenſe and reaſon, and not onely the head; the onely difference is, that the ſeveral actions of ſeveral parts, cauſe ſeveral ſorts of perceptions; and the rational parts being the moſt active, and pureſt, and moving within themſelves, can make more figures in the ſame compaſs or magnitude, and in a much ſhorter time then the ſenſitive, which being burthened with the inanimate parts, cannot act ſo agily and freely: Nevertheſs, ſome of the ſenſitive actions are much agiler and nimbler then others, as we may perceive in ſeveral ſorts of productions. But the rational parts being joined with the ſenſitive in the exterior parts of a figure, do, for the moſt part, work together with the ſame; otherwiſe, when they move by themſelves in Thoughts, Conceptions, Remembrance, and the like; they are more inward, as within the head; for there are Perceptions of interior parts, as well as of exterior; I mean, within a compoſed figure, by reaſon all parts are perceptive: Neither does this prove, that if there be ſo many perceptions in one compoſed figure, there muſt be numerous ſeveral perceptions of one object in that ſame figure; for every part knows its own work, or elſe there would be a confuſion in Natures actions: Neither are all perceptions alike, but as I ſaid, according as the ſeveral actions are, ſo are the perceptions.

Q. 19. *What is the reaſon, that the nearer a ſtick or finger is held againſt a Concave-glaſs, the more does the pattern of it,*

it, made by the glaſs, appear to iſſue out of the glaſs, and meet with the object that is without it?

I anſwer: 'Tis not that ſomething really iſſues out of the Glaſs; but as in a plain Looking-glaſs, the further the object goes from it, the more does its copy or image ſeem to be within the glaſs: So, in the ſame manner does the length of the ſtick, which is the meaſure of the object, or diſtance that moves: For, as to a man that rides in a Coach, or ſails upon Water, the Shore, Trees, Hedges, Meadows, and Fields, ſeem to move; when as yet, 'tis the man that moves from them; ſo it is with the figure in a Looking-glaſs: Wherefore it is onely a miſtake in the animal ſenſe, to take the motion of one, for the motion of the other.

Q. 20. *Whether a Part or Figure repeated by the ſame Motions, be the ſame part or figure as the former, or onely like the former; as alſo whether an action repeated, be the ſame with the former?*

I anſwer: That if the Parts, Figures and Actions be the ſame, they will always remain the ſame, although they be diſſolved and repeated millions of times; as for example, if you make a figure of wax, and diſſolve it, and make that figure again juſt as it was before, and of the ſame parts, and by the ſame action, it will be the very ſame figure; but if you alter either the parts, or the figure, it may be like the former figure, but not the very ſame. The like for action; if one and the ſame action be repeated without any alteration, it is nothing

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elſe but a repetition of the corporeal figurative motions; but if there be any alteration in it, it is not made by the ſame figurative motions, and conſequently, 'tis not the ſame action; for though the ſelf-moving parts be the ſame, yet the figurative motions are not the ſame; not that thoſe figurative motions are not in the ſame parts, but not repeated in the ſame manner. Wherefore it is well to be obſerved, that a Repetition is of the ſame parts, figures and actions that were before, but an alteration is not a repetition; for whereſoever is but the leaſt alteration, there can be no exact repetition.

Q. 21. *Whether there may be a Remembrance in Senſe, as well as there is in Reaſon?*

I anſwer, Yes: for Remembrance is nothing elſe but a Repetition of the ſame figure, made by the ſame corporeal figurative motions; and as there is a rational remembrance, which is a repetition of the ſame figures, made by the rational, corporeal figurative motions, ſo there is alſo a ſenſitive remembrance, that is, a repetition of the ſame figures, made by the ſenſitive, corporeal, figurative motions: For example, I ſee an object; the ſenſitive motions in the eye, pattern out the figure of that object; but as ſoon as the object is removed, the perception is altered. It may be, I ſee the ſame object again in a dream, or in a phrenſie, or the like diſtemper; and then the ſame figure is repeated which was made firſt by the ſenſitive motions of the figure of the object, when it was really preſent; which

is a ſenſitive remembrance, whether the repetition be made after a Pattern or by rote, although it is more proper to ſay, that remembrance is onely a repetition of ſuch figures as are made by rote, then of thoſe that are made after a Pattern; for a repetition of thoſe figures that are made after a Pattern; is rather a preſent perception of a preſent object; when as remembrance is of objects that are abſent.

Q. 22. *Whether the rational Parts can quit ſome Parts and join to others?*

I anſwer: Our ſenſe and reaſon perceives they do; or elſe there would be no Motion, no Separation, Compoſition, Dilation, Contraction, Digeſtion, Production, Transformation, Infancy, Youth, Age, nor no Action in the World whatſoever: And by this it alſo evident, that (as I ſaid before) particular, rational and ſenſitive parts, are not bound to move always together, or to keep conſtantly to the ſame parts, no not in the action of perception; for though they moſt commonly work together when they move regularly; yet many times they do not: as for Example, the ſenſitive do not always make perceptions of exterior objects, but many times make figures by rote; as 'tis manifeſt in mad men and ſuch as are in high Feavers and the like diſtempers, which ſee or hear, taſte or ſmell ſuch or ſuch objects when none are preſent; and the Rational Parts being regular, do perceive both the ſenſitive figures made by rote, and that there are

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no ſuch exterior objects really preſent; alſo the Rational parts make figures by rote, and without any outward pattern; but ſuch voluntary figures cannot properly be named Perceptions, by reaſon Perceptions are occaſioned by outward objects; but they are rather voluntary Conceptions.

Q. 23. *If it be ſo, that Parts can divide themſelves from ſome Parts, and join to other Parts: Why may not the ſoul do the ſame, and change its Vehicles, that is, leave ſuch, and take other Vehicles?*

I anſwer: Concerning the Natural ſoul of man, which is part of Nature, and conſiſts of the pureſt and ſubtileſt degree of matter, which is the Rational, it is without queſtion, that it is divideable and compoſeable, becauſe it is material, and therefore ſubject to changes and tranſmutations; But as for the ſupernatural ſoul, becauſe ſhe is ſpiritual and conſequently indivi-dable, as having no parts, and therefore not the propriety of a body which is to have figurative actions, it cannot be ſaid of her that ſhe is ſubject to compoſitions, diviſions, tranſmutations, *&c.* However, put the caſe the ſupernatural ſoul ſhould have thoſe proprieties of a body, although no body her ſelf; Yet there could be but one infinite ſoul in one infinite body, and as the body did divide, ſo the ſoul muſt of neceſſity do alſo; otherwiſe one ſoul would have many bodies, and ſome bodies would be ſoul-leſs; which would cauſe a horrid confuſion between ſouls and bodies. Where-

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fore in my opinion *Pythagoras*'s doctrine concerning the tranſmigration of ſouls, or that one ſoul can take ſeveral bodies, is as abſurd, as that one body can quit one place and acquire an other, and ſo have more places then bodies; which if it were thus, we might with as much probability affirm, that many bodies could be in one place, and in the reſurrection of bodies there would certainly ariſe a great diſpute between ſeveral bodies for one ſoul, and between ſeveral ſouls for one body, eſpecially if one body was particularly beloved of more then one ſoul; all which would breed ſuch a war between ſouls and bodies, ſouls and ſouls, and bodies and bodies, that it would put all the world into a confuſion; and therefore my opinion is, that Nature is but one onely infinite body, which being ſelf-moving, is divideable and compoſeable, and conſiſts of infinite parts of ſeveral degrees, which are ſo intermixt, that in general they cannot be ſeparated from each other, or from the body of Nature, and ſubſiſt ſingle and by themſelves; Neither can it be otherwiſe, unleſs Nature had ſeveral bodies, but though ſhe has infinite parts, yet has ſhe but one infinite body; for parts and body are but one Corporeal, ſelf-moving, ſelf-living and ſelf-knowing Nature; And as for the degrees of animate and inanimate matter, they are alſo but parts of that one body of Nature, and the various and infinite knowledges, perceptions, lives, *&c.* conſidered in general, are nothing elſe but the life,

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knowledg and perception of the infinite body of Nature. And from hence it follows, that one man may have numerous ſouls, as well as he has numerous parts and particles; which as long as the whole figure of man laſts, their functions and actions are according to the nature of that figure; but when the figure of man diſſolves (which diſſolution is nothing elſe but a change of thoſe motions that were proper to the nature of its figure) then all the parts of that figure, if they be joined and compoſed with other parts and figures, become not ſoul-leſs, or life-leſs; but becauſe they conſiſt all of a commixture of animate and inanimate matter, they retain life and ſoul, onely the actions of that life and ſoul are according to the nature of thoſe figures which the parts of the animal body did change into. Thus, as I have mentioned in my *Philoſophical Letters**, no Creature can challenge a particular life and ſoul to it ſelf, but every Creature may have by the dividing and compoſing-nature of this ſelf-moving Matter, more or fewer natural ſouls and lives.

* *Preface.*

And thus much of knowledg and perception; which ſince it is not onely the ground of Natural Philoſophy, but a ſubject of a difficult Nature, I have inſiſted ſomewhat longer upon it then I have done upon any other, and endeavoured to clear it as well as I could; ſo that now, I hope, all that I have declared hitherto, will be ſufficient to give the ingenious Reader a true information of my opinion thereof, and a ſatisfactory anſwer

to any other ſcruples that ſhould happen to puzzle his brain; I'le add no more at this preſent, but conclude with a brief repetition of thoſe few Notes concerning the principles, which by that ſmall portion of Reaſon and Judgment that Nature has allowed me, I have endeavoured to declare and prove in my works of Natural Philoſophy.

1. There is but one Matter, and infinite Parts; one ſelf-motion, and infinite Actions; one Self-knowledg, and infinite particular Knowledges and Perceptions.

2. All parts of Nature are living, knowing, and perceptive, becauſe all are ſelf-moving, for ſelf-motion is the cauſe of all particular effects, figures, actions, varieties, changes, lives, knowledges, perceptions, *&c.* in Nature, and makes the onely difference between animate and inanimate Matter.

3. The chief and general actions of Nature, are diviſion and compoſition of parts, both which are done but by one act; for at the ſame time, when parts ſeparate themſelves from ſuch parts, they join to other parts; and this is the cauſe there can be no *Vacuum*, nor no ſingle parts in Nature.

4. Every particular part or figure is infinitely divided and compoſed from and with other parts.

5. The infinite diviſions and compoſitions hinder, that Nature cannot run into extreams in her particulars, but keep the parts and actions of Nature in an equal ballance.

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6. The Inanimate part of Matter has life, ſenſe, and ſelf-knowledg, as well as the animate; but being not moving in it ſelf, or its own Nature, it has not ſuch a perceptive ſenſe and ſelf-knowledg, nor ſuch an active life as the animate hath.

7. The parts of Inanimate Matter alter according to their commixture with the Animate, and ſo do their particular ſelf-knowledges.

8. As parts alter by the changes of motions, ſo do particular perceptions.

9. Though all perceptions are figurative actions, yet no particular Creature can undoubtedly affirm, that all are made by patterning or imitation; by reaſon as the parts and actions of Nature are infinite, ſo are alſo particular perceptions; and being infinite, they cannot be known by any particular Creature.

10. There are beſides exterior perceptions, voluntary actions, both of ſenſe and reaſon, not made by imitation, but freely and by rote; and theſe may be called conceptions, rather then perceptions.

11. Thoſe are much in the wrong, who believe, that man can know no more then what his five ſenſes do inform him; for the rational part, which is the pureſt, ſubtileſt, moſt active, and inſpective part of Nature, does inform it ſelf of things which the ſenſitive cannot; as for example, how was the new world and the Antipodes found out? for they were neither ſeen, nor heard of, nor taſted, nor ſmelled, nor touched. Truly

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our reaſon does many times perceive that which our ſenſes cannot; and ſome things our ſenſes cannot perceive until reaſon informs them; for there are many inventions which owe their riſe and beginning onely to reaſon. It is not ſenſe, but reaſon that knows or perceives, there is ſomething beyond it ſelf, and beyond Nature, which is the Onely, Eternal, and Omnipotent God, and there can be no higher conception then this; for what is beyond it, is ſupernatural, and belongs to ſupernatural Creatures; as for example, thoſe divine ſouls which God has given to men, above their rational material ſouls: but as for the wicked ſouls, they come not from God, but are irregularities of Nature, which God certainly will puniſh, as a Maſter does the evil actions of his Servant.

12. Art is but a Natural Creature or effect, and not a Creator of any thing.

13. Colour, Magnitude, Figure, Place, Time, Gravity, Levity, Denſity, Rarity, Compoſitions, Diviſions, Alterations, *&c.* are all one and the ſame with ſelf-moving Matter, and nothing elſe but the various actions of Nature; which actions can no more be ſeparated from body, then body can from Matter, or parts from their whole; for all that is natural, is corporeal; and therefore the diſtinction into ſubſtances and accidents, is to no purpoſe, ſince there cannot really be, no not imagined, ſuch a thing as an incorporeal or ſubſtanceleſs motion or action in Nature.

But ſome perhaps will ſay, If every part and particle of Nature has Magnitude, Colour, Figure, Place, *&c.* How is it poſſible that they can be one and the ſame with body, ſince they are ſubject to ſeveral perceptions?

To which I anſwer, The ſeveral perceptions do not make them to be ſeveral bodies, but they are patterned out or perceived as ſeveral proprieties or attributes of one body, or as ſeveral effects of one cauſe; for though there is but one cauſe in Nature, which is ſelf-moving matter; yet that onely cauſe muſt of neceſſity have ſeveral effects or proprieties, as Figure, Colour, Place, Magnitude, *&c.* and if I may without offence make a compariſon between the Creator and a Creature, God is but one in his Eſſence, as one Infinite and Eternal God, and yet has ſeveral Divine Attributes; and though the parts of Nature cannot comprehend, conceive, or perceive God, yet they may conceive ſomewhat of his ſeveral Attributes, after ſeveral manners or wayes: In the like manner, although there is but one matter, yet that matter may be perceived after ſeveral manners or ways, it being impoſſible that matter, or any part or particle of matter, although it were ſingle, ſhould be without thoſe ſeveral mentioned proprieties; for can any one conceive or imagine a body without Figure, Magnitude, Place or Colour, were it as little as an Atome? and ſince there are no Natural Figures or

Creatures but conſiſt of parts, thoſe compoſed Figures may have a different Magnitude, Place, Colour, *&c.* from their parts and particles were they ſingle; but being ſelf-moving, thoſe figures may alter by ſelf-motion; for 'tis as impoſſible for a body to be without parts, as for parts to be without body; but if matter were not ſelf-moving, there would neither be alterations, perceptions, nor any natural actions, although there might be a fixt ſelf-knowledg in Natures parts. And thus it is no wonder how there can be ſeveral perceptions of one figure, by reaſon there's no figure but is compoſed of parts; and as we can conceive a whole and its parts, which yet are one and the ſame thing, ſeveral ways; (for a whole we conceive as a compoſition of parts; and parts we conceive as a diviſion of the whole) ſo we may Figure, Place, Magnitude, *&c.* And as we cannot conceive nor perceive motion without body; ſo neither can we conceive thoſe mentioned proprieties without body, or body without them, they being nothing elſe but the corporeal, figurative actions of Nature.

FURTHER OBSERVATIONS UPON EXPERIMENTAL PHILOSOPHY,

Reflecting withal upon ſome Principal Subjects in

CONTEMPLATIVE PHILOSOPHY.

1. *Ancient Learning ought not to be exploded, nor the Experimental part of Philoſophy preferred before the Speculative.*

IN this preſent age thoſe are thought the greateſt Wits that rail moſt againſt the ancient Philoſophers, eſpecially *Ariſtotle*, who is beaten by all; but whether he deſerve ſuch puniſhment, others may judg. In my opinion, he was a very ſubtil Philoſopher, and an ingenious Man; 'tis true, he was ſubject to errors as well as other men are, (for there is no creature ſo perfect but may err, nay, not Nature her ſelf; but God onely

who is Omnipotent) but if all that err ſhould be accounted fools, and deſtitute of regular reaſon, then thoſe deſerve it moſt who think themſelves wiſer then they are, and upon that account few in this age would eſcape this cenſure. But concerning the Opinions of ancient Philoſophers, condemned by many of our modern Writers, I for my particular, do very much admire them; for although there is no abſolute perfection in them, yet if we do but rightly conſider them, we ſhall find, that in many things, they come nearer to truth then many of our Moderns; for ſurely the ancients had as good and regular rational and ſenſitive perceptions, and as profitable Arts and Sciences as we have; and the world was governed as well, and they lived as happily in ancient times, as we do now, nay more. As for example; how well was the World governed, and how did it flouriſh in *Auguſtus's* time? how many proud and ſtately Buildings and Palaces could ancient *Rome* ſhew to the world, when ſhe was in her flower? The Cedars, Gold, and many other curioſities which *Solomon* uſed in the ſtructure of that Magnificent Temple, (the like whereof our age cannot ſhew) were as ſafely fetch'd and brought to him out of forreign places, as thoſe commodities which we have out of other Countries either by Sea or Land: Beſides, I doubt not but they had as profitable and uſeful Arts and knowledges, and as skilful and ingenious Artiſts as our age can boaſt of; if not the very ſame, yet the

the like, and perhaps better, which by the injury of time have been loſt, to our great diſadvantage; it may be they had no Microſcopes or Teleſcopes, but I think they were the happier for the want of them, imploying their time in more profitable ſtudies: What learned and witty people the *Egyptians* were, is ſufficiently known out of ancient Hiſtories, which may inform us of many more. But I perceive the knowledg of ſeveral ages and times, is like the increaſe and decreaſe of the Moon; for in ſome ages Art and Learning flouriſhes better then in others, and therefore it is not onely an injury, but a ſign of ill-nature, to exclaim againſt ancient Learning, and call it Pedantry; for if the ancients had not been, I queſtion whether we ſhould have arrived to that knowledg we boaſt of at this preſent; for they did break the Ice, and ſhew'd us the way in many things, for which we ought to be thankful, rather then reward them with ſcorn. Neither ought Artiſts, in my opinion, to condemn Contemplative Philoſophy, nay, not to prefer the Experimental part before her; for all that Artiſts have, they are beholden for it to the conceptions of the ingenious Student, except ſome few Arts which aſcribe their original to chance; and therefore ſpeculation muſt needs go be fore practice; for how ſhall a man practiſe, if he does not know what or which way to practiſe? Reaſon muſt direct firſt how ſenſe ought to work, and ſo much as the Rational knowledg is more noble then the Senſi-

tive,ſo much is the Speculative part of Philoſophy more noble then the Mechanical. But our age being more for deluding Experiments then rational arguments, which ſome cal a *tedious babble*,doth prefer Senſe beforeReaſon, and truſts more to the deceiving ſight of their eyes, and deluding glaſſes,then to the perception of clear and regular Reaſon; nay, many will not admit of rational arguments, but the bare authority of an Experimental Philoſopher is ſufficient to them to decide all Controverſies,& to pronounce the Truth without any appeal to Reaſon; as if they onely had the Infallible Truth of Nature, and ingroſſed all knowledg to themſelves. Thus Reaſon muſt ſtoop to Senſe, and the Conceptor to the Artiſt, which will be the way to bring in Ignorance, inſtead of advancing knowledg; for when the light of Reaſon begins to be Eclipſed, darkneſs of Underſtanding muſt needs follow.

2. *Whether Artificial Effects may be called Natural, and in what ſenſe.*

IN my former diſcourſes I have declared that Art produces Hermaphroditical Effects, that is, ſuch as are partly Natural, and partly Artificial; but the queſtion is, whether thoſe Hermaphroditical Effects may not be called Natural Effects as well as others, or whether they be Effects quite different and diſtinct from Natural? My anſwer is, When I call Artificial Effects

effects Hermaphroditical, or ſuch as are not Natural; I do not ſpeak of Nature in general, as if they were ſomething elſe beſides Nature; for Art it ſelf is natural, and an effect of Nature, and cannot produce any thing that is beyond, or not within Nature; wherefore artificial effects can no more be excluded from Nature, then any ordinary effect or Creature of Nature; But when I ſay they are not natural, I underſtand the particular nature of every Creature, according to its own kind or ſpecies; for as there is Infinite Nature which may be called General Nature, or Nature in General, which includes and comprehends all the effects and Creatures that lie within her, and belong to her, as being parts of her own ſelf-moving body; ſo there are alſo particular natures in every Creature, which are the innate, proper and inherent interior and ſubſtantial forms and figures of every Creature, according to their own kind or ſpecies, by which each Creature or part of Nature is diſcerned or diſtinguiſhed from the other; as for example, although an Animal and a Vegetable be fellow Creatures, and both Natural, becauſe Material, yet their interior particular Natures are not the ſame, becauſe they are not of the ſame kind, but each has its own particular Nature quite different from the other; and theſe particular Natures are nothing elſe but a change of corporeal figurative motions, which make this diverſity of figures; for were the ſame interior and natural motions found in an Animal as are in

a Vegetable, an Animal would be a Vegetable, and a Vegetable an Animal without any difference; and after this rate there would be no variety at all in Nature; but ſelf-motion acting diverſly and variouſly, not onely in every kind and ſpecies, but in every particular Creature and part of Nature, cauſeth that wonderful variety which appears every where even to our admiration in all parts of Nature. But to return to artificial effects, it is known that Nature has her own ways in her actions, and that there are conſtant productions in every kind and ſort of natural Creatures, which Nature obſerves in the propagation and increaſe of them; whoſe general manner and way is always the ſame; (I ſay, general, becauſe there are many variations in the particular motions belonging to the production of every particular Creature.) For example, all Mankind is produced after one and the ſame manner or way, to wit, by the copulation of two perſons of each Sex; and ſo are other ſorts of Creatures produced other ways: alſo a perfect Creature is produced in the ſame ſhape, and has the ſame interior and exterior figure as is proper to it according to the nature of its kind and ſpecies to which it belongs, and this is properly called a natural production: But when the figurative motions in particular productions do not move after this ordinary way, as in the productions of Monſters, it is called a præter-natural or irregular production, proceeding from the irregularity of motions; not præternatural in reſpect to general Nature,

Nature, but in reſpect to the proper and particular nature of the figure. And in this regard I call Artifical effects Hermaphroditical, that is, partly Natural, and partly Artificial; Natural, becauſe Art cannot produce any thing without natural matter, nor without the aſsiſtance of natural motions, but artificial, becauſe it works not after the way of natural productions; for Art is like an emulating Ape, and will produce ſuch figures as Nature produces, but it doth not, nor cannot go the ſame way to work as Nature doth; for Natures ways are more ſubtil and myſterious, then that Art, or any one particular Creature ſhould know, much leſs trace them; and this is the true conſtruction of my ſenſe concerning natural and artificial production; whereby it is manifeſt that I am not of the opinion of that Experimental Writer who thinks it no improbability to ſay that all natural effects may be called artificial, nay, that Nature her ſelf may be called the Art of God; for Art is as much inferior to Nature, as a part is inferior to the whole, and all Artificial Effects are Irregular in compariſon to Natural; wherefore to ſay God or Nature works Artificially, would be as much as to ſay they work irregularly.

3. *Of Natural Matter and Motion.*

I Am of that Learned Authors mind, who counts thoſe but *narrow ſouls, and not worthy the name of Philoſophers,*

Philoſophers, that think any body can be too great, or too vaſt, as alſo too little in its natural dimenſions, and that Nature is ſtinted at an atome, and brought to a non-plus *of her ſub-diviſions*; for truly, if there cannot be Extreams in Infinite, there can alſo be none in Nature, and conſequently there can neither be ſmalleſt nor biggeſt, ſtrongeſt nor weakeſt, hardeſt nor ſofteſt, ſwifteſt nor ſloweſt, *&c.* in Nature, by reaſon Nature is Infinite in her actions, as well as in her parts, and hath no ſet bounds or limits; and therefore the Corpuſcularian or Atomical Writers, which do reduce the parts of Nature to one certain and proportioned Atome, beyond which they imagine Nature cannot go, becauſe their brain or particular finite reaſon cannot reach further, are much deceived in their arguments, and commit a fallacy in concluding the finiteneſs and limitation of Nature from the narrowneſs of their rational Conceptions. Nevertheleſs, although Natures actions and parts are Infinite, conſidered in general, yet my opinion is, that Nature never doth actually run into Infinite in her particular actions and parts; for as there are infinite diviſions, ſo there are alſo infinite compoſitions in Nature; and as there are infinite degrees of hardneſs, ſlowneſs and thickneſs, ſo there are alſo infinite degrees of ſoftneſs, ſwiftneſs, thinneſs, *&c.* ſo that every particular motion or action of Nature is ballanced and poiſed by its oppoſite, which hinders a running into infinite in natures

tures particulars, and cauſes a variety of natural figures; for although Infinite Matter in it ſelf and its own eſſence is ſimple and homogeneous, as the learned call it, or of the ſame kind and nature, and conſequently is at peace with it ſelf, yet there is a perpetual oppoſition and war between the parts of nature, where one ſometimes gets the better of the other, and overpowers it either by force or ſlight, and is the occaſion of its diſſolution into ſome other figure; but there's no part ſo powerful as to reduce any thing into nothing, or to deſtroy it totally from being Matter; nay, not Nature her ſelf has ſuch a power, but God alone, who as he has made Nature, ſo he may deſtroy her; for although Nature has an Infinite power, yet ſhe is not omnipotent, but her power is a natural infinite power, when as Omnipotency is an attribute onely belonging to God; neither hath ſhe a divine, but a natural infinite knowledg; by which it is evident, that I do not aſcribe divine attributes to Nature, which were to make her a God, nor detract from Nature that which properly belongs to her; for Nature being infinite in body and parts, it would be abſurd to confine her to a finite power and knowledg. By parts, I underſtand not onely the infinite figures and fizes, but alſo the infinite actions of Nature: and I am of *Des Cartes* opinion, that the parts of Matter may be made bigger or leſs by addition or ſubtraction of other parts; but I cannot yield to him when he ſays, that Motion may be ſwifter and ſlower

by addition given to the movent by other contiguous bodies more ſwiftly moving, or by ſubduction of it by bodies ſlower moved, and that Motion may be tranſferred out of one body into another; for Motion cannot be conceived, much leſs ſubſiſt without Matter; and if Motion ſhould be transferred or added to ſome other body, Matter muſt be added or transferred alſo: Neither doth the addition of ſome parts of Matter add always exterior local motion to the body it is joyned to, but they retain the motion proper to their own figure and nature; as for example, if a ſtone be added to an animal, it will rather hinder then help its exterior motions. But I muſt refer the Reader to my other Philoſophical Works, in which I have diſcourſed more of this ſubject.

4. Nature *cannot be known by any of her Parts.*

I Am not of *Plinius*'s Opinion, That *Nature in her whole power is never more wholly ſeen then in her ſmalleſt Works*; For how can Nature be ſeen in a part, when as Infinite cannot be known neither in nor by any Part, much leſs a ſmall Part? Nay, were Nature a great finite body, it could not be perceived intirely in and by a ſmall or minute part, no more then a humane eye can ſee all this world Celeſtial and Tereſtial at once. 'Tis true, Reaſon being joyned to Senſe, may make a better diſcovery then if they were ſeparated;

rated; but as the humane optick ſenſe is not capable to perceive the greateſt, ſo neither the ſmalleſt creatures exterior, much leſs their interior parts, although aſſiſted by Art; for Art, (as I mentioned before) many times deludes rather then informs, making hermaphroditical figures; and Nature has more variety and curioſity in the ſeveral forms, and figurative corporeal motions of one of the ſmalleſt creatures, then the moſt obſerving and cleareſt optick ſenſe can perceive. But miſtake me not; I do not ſay, that Arts are not profitable, but that they are not truly and thorowly intelligent or knowing of all Natures works; for ſeveral Arts are like ſeveral other Creatures, which have their particular natures, faculties and proprieties, beyond which they cannot go, and one Creature is not able to comprehend or know all other Creatures, no not any one ſingle Creature perfectly, which if ſo, then none can inform what it doth not know. Nay, not onely one particular Creature is not able to know it, but not one particular kind or ſort of Creatures: as for example; all Man-kind that ever have liv'd, or are at preſent living in this world, could never find out the truth of Nature, even in the leaſt of her parts, nay, not in themſelves: For what man is he that knows the figurative corporeal motions, which make him to be ſuch a Creature as Man, or that make any part of him? and what Man or Art can inform us truly of the figurative motions that make the nature of blood, fleſh, bones,

bones, *&c.* or can give a reaſon why the heart is triangular, and the head ſpherical, and ſo for every differently-ſhaped part of his body? I will not ſay, but that Man may gueſs at it, but not infallibly know it by any Art; wherefore Reaſon will more truly diſcover ſo much of Nature as is diſcoverable to one kind or ſort of Creatures, then Art can do; for Art muſt attend Reaſon as the chief Miſtris of Information, which in time may make her a more prudent and profitable ſervant then ſhe is; for in this age ſhe is become rather vain then profitable, ſtriving to act beyond her power, as I do undertake to write beyond my experience, for which, 'tis probable Artiſts will condemn me; but if I err, I ask their pardon, and pray them to conſider the Nature of our ſex, which makes us, for the moſt part, obſtinate and wilful in our opinions, and moſt commonly impertinently fooliſh: And if the Art of Micrography can but find out the figurative corporeal motions that make or cauſe us to be thus, it will be an Art of great fame, for by that Artiſts may come to diſcover more hidden cauſes and effects; but yet I doubt they will hardly find out the interior nature of our ſex by the exterior form of their faces or countenances, although very curious, and full of variety of ſeveral beauties; nay, I dare on the contrary ſay, had a young beautiful Lady ſuch a face as the Microſcope expreſſes, ſhe would not onely have no lovers, bnt be rather a Monſter of

Art,

Art, then a picture of Nature, and have an averſion, at leaſt a diſlike to her own exterior figure and ſhape; and perchance if a Lowſe or Flea, or ſuch like inſect, ſhould look through a Microſcope, it would be as much affrighted with its own exterior figure, as a young beautiful Lady when ſhe appears ill-favoured by Art. I do not ſay this, as if Optick Glaſſes could not preſent the true figure of an Original; for if they do not exceed the compaſs of natural dimenſions, they may; but when they endeavour to go beyond them, and do more then Nature has done, they rather preſent monſtrous, then truly natural figures. Wherefore thoſe, in my opinion, are the beſt Artiſts, that keep neareſt to Natures Rules, and endeavour not to know more then what is poſsible for a finite part or creature to know; for ſurely there is no better way to be rightly and truly informed of Natures works, then by ſtudying Natures corporeal figurative motions, by the means of which ſtudy, they will practiſe Arts (as far as Art is able to be practiſed) more eaſily and ſucceſsfully then they will do without it. But to conclude this diſcourſe, ſome parts of Nature are more indued with regular reaſon then others, which is the cauſe that ſome creatures of one and the ſame ſort or kind, as for example, Mankind, are more wiſe and ingenious then others; and therefore it is not art, but regular ſenſe and reaſon, that makes ſome more knowing, and ſome more wiſe and ingenious then others; and the irregular motions

of ſenſe and reaſon that make ſome more ignorant or more extravagant in their opinions then others.

5. *Art cannot introduce new forms in Nature.*

SOme account it a great honour, *That the Indulgent Creator, although he gives not to Natural Creatures the power to produce one atome of matter, yet allows them the power to introduce ſo many forms which Philoſophers teach to be nobler then matter, and to work ſuch changes amongſt Creatures, that if* Adam *was now alive, and ſhould ſurveigh the great variety of mans production, that are to be found in the ſhops of Artificers, the Laboratories of Chymiſts, and other well furniſhed Magazines of Art, he would admire to ſee what a new world it were.* Where,firſt,I do not underſtand,how man,or any other creature, ſhould have the power of making or introducing new forms, if thoſe forms were not already in Nature; for no Creature by any Art whatſoever, is able to produce a new form, no more then he can make an atome of new matter, by reaſon the power lies in Nature, and the God of Nature, not in any of her Creatures; and if Art may or can work changes amongſt ſome fellow-creatures, they are but natural, by reaſon Nature is in a perpetual Motion, and in ſome parts in a perpetual transformation. Next, as for the Queſtion,Whether forms be more noble then the matter? my opinion is, that this can with no more ground

of

of truth be affirmed, then that the effect is nobler then its cauſe, and if any creature ſhould have power to make forms, which are more noble then matter it ſelf, then certainly that creature would be above Nature, and a creator rather then a creature. Beſides, form cannot be created without matter, nor matter without form; for form is no thing ſubſiſting by it ſelf without matter, but matter and form make but one body; and therefore he that introduces a new form, muſt alſo introduce a new matter; and though Art changes forms, yet it cannot be ſaid to introduce a new form; for forms are and have been eternally in Nature as well as Matter, ſo that nothing is created anew, which never was in Nature before. 'Tis true, if *Adam* were alive now, he might ſee more variety, but not more Truth; for there are no more kinds and ſorts of natural Creatures, then there were at his time, though never more metamorphoſed, or rather I may ſay disfigured, unnatural and hermaphroditical iſſues then there are now, which if they ſhould make a new world by the Architecture of Art, it would be a very monſtrus one: But I am ſure art will never do it; for the world is ſtill as it was, and new diſcoveries by Arts, or the deaths and births of Creatures will not make a new world, nor deſtroy the old, no more then the diſſolving and compoſing of ſeveral parts will make new Matter; for although Nature delights in variety, yet ſhe is conſtant in her groundworks; and it is a great error in man to ſtudy more the exterior

exterior faces and countenances of things, then their interior natural figurative motions, which error muſt undoubtedly cauſe great miſtakes, in ſo much as mans rules will be falſe, compared to the true Principles of Nature; for it is a falſe Maxime to believe, that if ſome Creatures have power over others, they have alſo power over Nature: it might as well be believed, that a wicked Man, or the Devil, hath power over God; for although one Part may have power over another, yet not over Nature, no more then one man can have power over all Mankind: One Man or Creature may over-power another ſo much as to make him quit his natural form or figure, that is, to die and be diſſolved, and ſo to turn into another figure or creature; but he cannot over-power all Creatures; nay, if he could, and did, yet he would not be an abſolute deſtroyer and Creator, but onely ſome weak and ſimple Transformer, or rather ſome artificial disfigurer and misformer, which cannot alter the world, though he may diſorder it: But ſurely as there was always ſuch a perpetual Motion in Nature, which did and doth ſtill produce and diſſolve other Creatures, which Production and Diſſolution is nam'd birth and death, ſo there is alſo a Motion which produces and diſſolves Arts, and this is the ordinary action and work of Nature, which continues ſtill, and onely varies in the ſeveral ways or modes of diſſolving and compoſing.

6. Whether

6. *Whether there be any Prime or Principal Figures in Nature, and of the true Principles of Nature.*

SOme are of opinion, that the Prime or Principal figures of Nature are *Globes* or *Globular figures*, as being the moſt perfect; but I cannot conceive why a globular or ſpherical figure ſhould be thought more perfect then any other, for another figure may be as perfect in its kind, as a round figure is in its kind: for example, we cannot ſay a Bird is a more perfect figure then a Beaſt, or a Beaſt a more perfect figure then a Fiſh, or Worm; neither can we ſay Man is a more perfect figure then any of the reſt of the Animals: the like of Vegetables, Minerals and Elements; for every ſeveral ſort has as perfect a figure as another, according to the nature and propriety of its own kind or ſort: But put the caſe man's figure were more perfect then any other, yet we could not ſay, that it is the Principle out of which all other figures are made, as ſome do conceive that all other figures are produced from the Globular or Spherical; for there is no ſuch thing as moſt or leaſt perfect, becauſe there is no moſt nor leaſt in Nature. Others are of opinion, that the Principle of all natural Creatures is *ſalt*, and that when the World diſſolves, it muſt diſſolve into ſalt as into its firſt Principle; but I never heard it determined yet, whether it be

fixt or volatile ſalt: Others again are of opinion, that the firſt principle of all Creatures is *Water*; which if ſo, then, ſeeing that all things muſt return into their firſt principle, it will be a great hinderance to the conflagration of the world, for there will be ſo much water produced as may chance to quench out the fire. But if Infinite Nature has Infinite parts, and thoſe Infinite parts are of Infinite figures, then ſurely they cannot be confined to one figure: Senſe and Reaſon proves that Nature is full of variety, to wit, of corporeal figurative motions, which as they do not aſcribe their original to one particular, ſo neither do they end in one particular figure or creature. But ſome will wonder that I deny any Part or Creatnre of Nature ſhould have a ſupremacy above the reſt, or be called Prime or Principal, when as yet I do ſay that Reaſon is the Prime Part of Nature. To which, I anſwer: That, when I ſay, no Creature in Nature can be called Prime or Principal, I underſtand Natural effects, that is, Natural compoſed Parts or Creatures: as for example, all thoſe finite and particular Creatures that are compoſed of Life, Soul and Body, that is, of the Animate both Rational and Senſitive, and the Inanimate parts of Matter, and none of thoſe compoſed Creatures, I mean, has any ſuperiority or ſupremacy above the reſt, ſo as to be the Principle of all other compoſed Creatures, as ſome do conceive Water, others Fire, others all the four Elements to be ſimple bodies, and the principles of all other

Natural

Natural Creatures, and ſome do make Globous bodies the perfecteſt figures of all others; for all theſe being but effects, and finite particulars, can be no principles of their fellow-creatures, or of Infinite Nature. But when I ſay that Reaſon, or the Rational part of Matter is the Prime Part of Nature, I ſpeak of the Principles of Nature, out of which all other Creatures are made or produced, which Principle is but one, *viz.* Matter, which makes all effects or Creatures of Nature to be material, for all the effects muſt be according to their principle; but this matter being of two degrees, *viz.* animate and inanimate, the animate is nothing but ſelf-motion; (I call it animate *matter*, by reaſon I cannot believe, as ſome do, that Motion is Immaterial, there being nothing belonging to Nature which is not material, and therefore corporeal ſelf-motion, or animate matter is to me one and the ſame) and this animate matter is again ſubdivided into two degrees, to wit, the rational and ſenſitive; the rational is the ſoul, the ſenſitive the life, and the inanimate the body of Infinite Nature; all which, being ſo intermixed and compoſed, as no ſeparation can be made of one from the other, but do all conſtitute one Infinite and ſelf-moving body of Nature, and are found even in the ſmalleſt particles thereof (if ſmalleſt might be ſaid) they are juſtly named the Principles of Nature, whereof the rational animate matter, or corporeal ſelf-motion is the chief deſigner and ſurveigher, as being the

the moſt active, ſubtil and penetrating part, and the ſenſitive the workman : but the inanimate part of Matter being thorowly intermixed with this animate ſelf-moving Matter, or rather with this corporeal ſelf-motion, although it have no motion in it ſelf, that is, in its own nature, yet by vertue of the commixture with the animate, is moving as well as moved ; for it is well to be obſerved, that although I make a diſtinction betwixt animate and inanimate, rational and ſenſitive Matter, yet I do not ſay that they are three diſtinct and ſeveral matters ; for as they do make but one body of Nature, ſo they are alſo but one Matter ; but as I mentioned before, when I ſpeak of ſelf-motion, I name it animate matter, to avoid the miſtake, leſt ſelf-motion might be taken for immaterial ; for my opinion is, that they are all but one matter, and one material body of Nature. And this is the difference between the cauſe or principle, and the effects of Nature, from the neglect of which comes the miſtake of ſo many Authors, to wit, that they aſcribe to the effects what properly belongs to the cauſe, making thoſe figures which are compoſed of the foreſaid animate and inanimate parts of matter, and are no more but effects, the principles of all other Creatures, which miſtake cauſes many confuſions in ſeveral mens brains, and their writings. But it may be, they will account it paradoxical or abſurd, that I ſay Infinite Matter conſiſts of two parts, *viz.* animate and inanimate, and

that

that the animate again is of two degrees, rational and ſenſitive, by reaſon the number of two is finite, and a finite number cannot make one infinite whole, which whole being infinite in bulk, muſt of neceſsity alſo conſiſt of infinite parts. To which I anſwer, My meaning is not, that Infinite Nature is made up of two finite parts, but that ſhe conſiſts out of a co-mixture of animate and inanimate Matter, which although they be of two degrees or parts (call them what you will) yet they are not ſeparated parts, but make one infinite body, like as life, ſoul and body, make but one man; for animate matter is (as I ſaid before) nothing elſe but ſelf-motion, which ſelf-motion joyned with inanimate matter makes but one ſelf-moving body, which body by the ſame ſelf-motion is divided into infinite figures or parts, not ſeparated from each other, or from the body of Nature, but all cohering in one piece, as ſeveral members of one body, and onely diſtinguiſhed by their ſeveral figures; every part whereof has animate and inanimate matter as well as the whole body: Nay, that every part has not onely ſenſitive, but alſo rational matter, is evident, not onely by the bare motion in every part of Nature, which cannot be without ſenſe, for whereſoever is motion, there's ſenſe; but alſo by the regular, harmonious and well-ordered actions of Nature, which clearly demonſtrate, that there muſt needs be reaſon as well as ſenſe in every part and particle of Nature; for there can be no order, method,

or harmony, eſpecially ſuch as appears in the actions of Nature, without there be reaſon to cauſe that order and harmony. And thus motion argues ſenſe, and the well-ordered motion argues Reaſon in Nature, and in every part and particle thereof, without which Nature could not ſubſiſt, but would be as a dull indigeſted and unformed heap and Chaos. Beſides, it argues that there is alſo knowledg in Nature, and all her parts; for whereſoever is ſenſe and reaſon, there is alſo ſenſitive and rational knowledg, it being moſt improbable, that ſuch an exactly-ordered and harmonious conſort of all the infinitely-various actions of Nature ſhould be without any knowledg, moving and acting, producing, transforming, compoſing, diſſolving, *&c.* and not knowing how, whether, or why to move; and Nature being infinite in her own ſubſtance as well as in her parts, there in bulk, here in number, her knowledg in general muſt of neceſsity be infinite too, but in her particulars it cannot but be finite and particular; and this knowledg differs according to the nature of each figure or creature; for I do not mean, that this ſenſe and knowledg I ſpeak of, is onely an animal ſenſe and knowledg, as ſome have miſ-interpreted; for animal ſenſe and knowledg is but particular, and belongs onely to that ſort of Creatures which are Animals; but I mean ſuch ſenſe and knowledg as is proper to the nature of each figure; ſo that Animal Creatures have animal ſenſe and knowledg, Vegetables a vegetative ſenſe and knowledg,

ledg, Minerals a mineral ſenſe and knowledg; and ſo of the reſt of all kinds and ſorts of Creatures. And this is my opinion of the Principles of Nature, which I ſubmit to the examination of the ingenious and impartial Reader to conſider, whether it contains not as much probability, as the opinion of thoſe whoſe Principles are either Whirl-pools, inſenſible Minima's, Gas, Blas and Archeus, duſty Atomes, thruſting backwards and forwards, which they call reaction, and the like; or of thoſe that make the ground and foundation of the knowledg of Nature artificial Experiments, and prefer Art before Reaſon: for my Principles and Grounds are ſenſe and reaſon; and if they cannot hold, I know not what will; for where ſenſe and reaſon has no admittance, there nothing can be in order, but confuſion muſt needs take place.

7. *Whether Nature be ſelf-moving.*

THere are ſome, who cannot believe, *That any Man has yet made out, how Matter can move it ſelf,* but are of opinion, *that few bodies move but by ſomething elſe, no not Animals, whoſe ſpirits move the nerves, the nerves again the muſcles, and ſo forth the whole body.* But if this were ſo, then certainly there muſt either be ſomething elſe that moves the ſpirits, or they muſt move of themſelves; and if the ſpirits move of themſelves, and be material, then a material ſubſtance or body may move

move of it ſelf; but if immaterial, I cannot conceive, why a material ſubſtance ſhould not be ſelf-moving as well as an immaterial. But if their meaning be, that the Spirits do not move of themſelves, but that the Soul moves them, and God moves the Soul; then it muſt either be done by an All-powerful Command, or by an Immediate action of God: The later of which is not probable, to wit, that God ſhould be the Immediate Motion of all things himſelf; for God is an Immoveable and Immutable Eſſence; wherefore it follows, that it is onely done by an Omnipotent Command, Will and Decree of God; and if ſo, Why might not Infinite Matter be decreed to move of it ſelf as well as a Spirit, or the Immaterial Soul? But I perceive, Man has a great ſpleen againſt ſelf-moving corporeal Nature, although himſelf is part of her, and the reaſon is his Ambition; for he would fain be ſupreme and above all other Creatures, as more towards a divine Nature: he would be a God, if arguments could make him ſuch, at leaſt God-like, as is evident by his fall, which came meerly from an ambitious mind of being like God. The truth is, ſome opinions in Philoſophy are like the Opinions in ſeveral Religions, which endeavouring to avoid each other, moſt commonly do meet each other; like Men in a Wood, parting from one another in oppoſite ways, oftentimes do meet again; or like Ships which travel towards Eaſt and Weſt, muſt of neceſ-

ſity

ſity meet each other; for as the learned Dr. *Donn* ſays, the furtheſt Eaſt is Weſt, and the furtheſt Weſt is Eaſt; in the ſame manner do the Epicurean, and ſome of our modern Philoſophers meet; for thoſe endeavour to prove matter to be ſomewhat like a God, and theſe endeavour to prove man to be ſomething like God, at leaſt that part of man which they ſay is immaterial, ſo that their ſeveral opinions make as great a noiſe to little purpoſe, as the dogs barking or howling at the Moon; for God the Author of Nature, and Nature the ſervant of God, do order all things and actions of Nature, the one by his Immutable Will, and Allpowerful Command, the other by executing this Will and Command; the one by an Incomprehenſible, Divine and Supernatural Power, the other in a natural manner and way; for God's Will is obey'd by Natures ſelf-motion, which ſelf-motion God can as eaſily give and impart to corporeal Nature, as to an Immaterial Spirit; but Nature being as much dividable, as ſhe is compoſeable, is the cauſe of ſeveral opinions as well as of ſeveral other creatures; for Nature is fuller of variety then men of arguments, which variety is the cauſe there are ſo many extravagant and irregular opinions in the world: and I obſerve, that moſt of the great and famous, eſpecially our modern Authors, endeavour to deduce the knowledg of cauſes from their effects, and not effects from their cauſes, and think to find out Nature by Art, not Art by Nature: whereas, in my opinion,

Reaſon muſt firſt conſider the cauſe, and then Senſe may better perceive the effects; Reaſon muſt judg, Senſe execute: for Reaſon is the prime part of Nature, as being the corporeal ſoul or mind of Nature. But ſome are ſo much in love with Art, as they endeavour to prove not onely Nature, but alſo Divinity, which is the knowledg of God, by Art, thus preferring Art before Nature, when as Art is but Natures fooliſh changeling Child; and the reaſon is, that ſome parts of Nature, as ſome Men, not knowing all other parts, believe there is no reaſon, and but little ſenſe in any part of Nature but themſelves; nay, that it is irreligious to ſay, that there is, not conſidering, that God is able to give Senſe and Reaſon to Infinite Nature, as well as to a finite part. But thoſe are rather irreligious, that believe Gods power is confined, or that it is not Infinite.

8. *Of Animal Spirits.*

I am not of the opinion of thoſe that place the cauſe of all Senſe and Motion in the animal Spirits, which they call *the Pureſt and moſt æthereal particles of all bodies in the World whatſoever, and the very top and perfection of all Natures operations*: For Animal Spirits, in my opinion, are no more then other effects of Nature, onely they are not ſo groſs as ſome, but are parts of a moſt pure, refined and rare ſort of Inanimate Matter,

Matter, which being intermixed with the parts of Animate Matter, and enlivened by them, become very ſubtil and active; I will not ſay, that they are of the higheſt and laſt degree of Inanimate Matter, neareſt to the Animate, (as they do ſay, they have the neereſt alliance to ſpiritualities, which in my opinion, is as much as to ſay, they are almoſt nothing) or of the firſt degree of ſenſitive matter, there being no ſuch thing as firſt and laſt in Nature, but that they are onely ſuch pure and rare parts of Inanimate Matter, as are not ſubject to the exterior perception of humane ſenſe; for example, as the matter of reſpiration, or the like: for as there are Infinite parts of Inanimate Matter, ſo there are alſo infinite degrees of ſtrength, weakneſs, purity, impurity, hardneſs, ſoftneſs, denſity, rarity, ſwiftneſs, ſlowneſs, knowledg, ignorance, *&c.* as alſo ſeveral ſorts and degrees of complexions, ſtatures, conſtitutions, humors, wits, underſtanding, judgment, life, death, and the like; all which degrees, although they be in and of the infinite body of Nature, yet properly they belong to particular Creatures, and have onely a regard to the ſeveral parts of Nature, which being Infinite in number, are alſo of Infinite degrees, according to the Infinite changes of ſelf-motion, and the propriety and nature of each figure; wherefore that opinion which makes Animal Spirits the prime or principal motion of all things, and the chief Agent in Natures three Kingdoms, Mineral, Animal and Vegetable, reduces

Infinite

Infinite Nature to a finite Principle; whereas any one that enjoys but ſo much of humane ſenſe and reaſon as to have the leaſt perception or inſight into Natural things, may eaſily conceive that the Infinite effects of Nature cannot proceed from a finite particular cauſe; nay, I am firmly perſwaded, that they who believe any finite part to be the cauſe and Principle of Infinite ſelf-moving Nature, do, in my opinion, not onely ſin againſt Nature, but againſt God the Author of Nature, who out of his Infinite bounty gave Nature the Power of ſelf-motion. But if any one deſire to know, what then the true cauſe and Principle of all Natures Creatures and Figures be; I anſwer, In my opinion, it is not a Spirit or Immaterial ſubſtance, but Matter; but yet not the Inanimate part of Matter, but the Animate; which being of two degrees, rational and ſenſitive; both of them are the Infinite Life and Soul of the Infinite body of Nature; and this Animate Matter is alſo the cauſe of all infinite works, changes, figures and parts of Nature, as I have declar'd above more at large. Now as great a difference as there is between Animate and Inanimate, Body and Soul, Part and Whole, Finite and Infinite, ſo great a difference there is alſo between the Animal Spirits, and the Prime Agent or Movent of Nature, which is Animate Matter, or (which is all one thing) corporeal ſelf-motion; and as it would be paradoxical, to make Inanimate Matter to be the cauſe of Animate, or a part to be the cauſe of the whole, whoſe

part

part it is, or a finite to be the cauſe of Infinite; ſo paradoxical would it alſo be to make Animal Spirits the *top and perfection of all Natures operations*; nay, ſo far are they from being the Prime Movent of other bodies, as they are but moved themſelves; for to repeat what I mentioned in the beginning, Animal Spirits are onely ſome ſorts of rare and pure Inanimate Matter, which being thorowly intermixt with the animate parts of Matter, are more active then ſome ſorts of more denſe and groſſer parts of Inanimate Matter; I ſay ſome; for I do believe, that ſome of the moſt ſolid bodies are as active as the moſt rare and fluid parts of Matter, if not exterioufly, yet interioufly; and therefore we cannot ſay, that rare and fluid parts are more active then fixt and ſolid, or that fixt and ſolid are leſs active then fluid bodies, becauſe all parts are ſelf-moving. But if I was to argue with thoſe that are ſo much for Animal Spirits, I would ask them, firſt, whether Animal Spirits be ſelf-moving? If they ſay, they are, I am of their opinion, and do infer thence, that if animal ſpirits, which are but a ſmall part of Nature, have ſelf-motion, much more has Nature her ſelf: But if not, I would ask, what gives them that motion they have? If they ſay Nature, then Nature muſt be ſelf-moving. Perchance they'l ſay, God moves Nature: 'Tis true, God is the firſt Author of Motion, as well as he is of Nature; but I cannot believe, that God ſhould be the Prime actual

Movent of all natural Creatures, and put all things into local motion, like as one wheel in a Clock turns all the reſt; for Gods Power is ſufficient enough to rule and govern all things by an abſolute Will and Command, or by a *Let it be done*, and to impart ſelf-motion to Nature to move according to his order and decree, although in a natural way. Next, I would ask whether any dead Creature have ſuch Animal Spirits? If they affirm it, I am of their mind; if not, then I would ask, what cauſes in dead bodies that diſſolution which we ſee? Thirdly, I would ask, whether thoſe animal ſpirits be annihilated and generated anew? If they anſwer, not, I am of their opinion: but if they ſay, they are annihilated and generated anew; then I would fain know who is their Generator and Annihilator, for nothing can generate and annihilate it ſelf? And if they ſay, God: I anſwer, It is not probable that God ſhould have made any thing imperfect, eſpecially in the production of Nature; for if there be things created anew which never were before in Nature, it argues that Nature was not perfect at firſt, becauſe of a new addition of ſo many Creatures; or if any thing could be annihilated in Nature, it would likewiſe argue an imperfection in Nature, *viz.* that Nature was perfecter before thoſe things were annihilated. And thus it would inferr, as if God had not power either to have made Nature perfect at firſt, or that God wanted work, and was forced to create and annihilate every moment;

moment; for certainly, the work of creation and annihilation is a divine action, and belongs onely to God. Laſtly, concerning the functions and offices which the animal ſpirits perform in animal, or at leaſt humane bodies, by their ſeveral motions and migrations from the brain through the ſpinal marrow, nerves, tendons, fibres, into all the parts of the body, and their return to the brain; I have declared my opinion thereof twelve years ſince, in my work of Poetical Fancies, which then came out the firſt time; and I thought it not unfit to inſert here, out of the ſame book, theſe following lines, both that my meaning may be the better underſtood, and that they may witneſs I have been of that opinion ſo many years ago.

The reaſon why Thoughts are made in the Head.

Poem. Impreſ. 2. p. 52.

Each Sinew is a ſmall and ſlender ſtring
Which all the Senſes to the body bring,
And they like pipes or gutters hollow be,
Where animal ſpirits run continually;
Though ſmall, yet they ſuch matter *do contain*
As in the skull doth lie, which we call brain.
Which makes, if any one do ſtrike the heel,
That ſenſe we quickly in the brain *do feel:*
It is not ſympathy, *but all one thing,*
Which cauſes us to think, and pain doth bring;

For

For had the heel ſuch quantity of brain
As doth the head and ſcull therein contain,
Then would ſuch thoughts as in the brain dwell high
Deſcend into our heels, and there they'ld lie:
In ſinews ſmall brain ſcattered lies about,
It wants both room and quantity, no doubt;
For did a ſinew ſo much brain but hold,
Or had ſo large a skin it to infold
As has the ſcull, then might the toe or knee,
Had they an optick nerve, both hear and ſee;
Had ſinews room Fancy *therein to breed,*
Copies of Verſe might from the heel proceed.

And again of the motion of the Blood.

P. 53. *Some by their induſtry and Learning found*
That all the blood *like to the Sea turns round;*
From two great arteries *it doth begin,*
Runs through all veins, *and ſo comes back again.*
The muſcles *like the tides do ebb and flow,*
According as the ſeveral ſpirits go:
The ſinews, *as ſmall pipes, come from the head,*
And they are all about the body ſpread;
Through which the animal ſpirits *are convey'd*
To every member, as the pipes are laid;
And from thoſe ſinew-pipes each ſenſe *doth take*
Of thoſe pure ſpirits, *as they us do make.*

9. Of

9. *Of the Doctrine of the Scepticks concerning the Knowledg of Nature.*

WHen Scepticks endeavour to prove that not any thing in Nature can be truely and thorowly known, they are, in my opinion, in the right way, as far as their meaning is, that not any particular Creature can know the Infinite parts of Nature; for Nature having both a divideable and compoſeable ſenſe and reaſon, cauſes ignorance as well as knowledg amongſt Particulars: But if their opinion be, that there is no true knowledg at all found amongſt the parts of Nature, then ſurely their doctrine is not onely unprofitable, but dangerous, as endeavouring to overthrow all uſeful and profitable knowledg. The truth is, that Nature, being not onely divideable, but alſo compoſeable in her parts, it cannot be abſolutely affirmed that there is either a total ignorance, or a univerſal knowledg in Nature, ſo as one finite part ſhould know perfectly all other parts of Nature; but as there is an ignorance amongſt Particulars, cauſed by the diviſion of Natures parts, ſo there is alſo a knowledg amongſt them, cauſed by the compoſition and union of her parts: Neither can any ignorance be attributed to Infinite Nature, by reaſon ſhe being a body comprehending ſo many parts of her own in a firm bond and indiſſoluble union, ſo as no part can ſeparate it ſelf from her, muſt of neceſsity

have alſo an Infinite wiſdom and knowledg to govern her Infinite parts. And therefore it is beſt, in my judgment, for Scepticks and Dogmatiſts to agree in their different opinions, and whereas now they expreſs their wit by diviſion, to ſhew their wiſdom by compoſition; for thus they will make an harmonious conſort and union in the truth of Nature, where otherwiſe their diſagreement will cauſe perpetual quarrels and diſputes both in Divinity and Philoſophy, to the prejudice and ruine of Church and Schools; which diſagreement proceeds meerly from ſelf-love: For every Man being a part of Nature, which is ſelf-loving as well as ſelf-moving, would fain be, at leaſt appear, wiſer then his fellow-creatures. But the Omnipotent Creator has ordered Nature ſo wiſely, as to divide not onely her power, but alſo her wiſdom into parts, which is the reaſon that ſhe is not Omnipotent, being divideable and compoſeable; When as God can neither be divided nor compoſed, but is one, ſimple and individual incomprehenſible being, without any compoſition of parts, for God is not material.

10. *Of Natural Senſe and Reaſon.*

THoſe Authors which confeſs, *That vulgar Reaſon is no better then a more refined Imagination, and that both Reaſon, Fancy and the Senſes, are influenced by the bodies temperament, and like the Index of a Clock, are moved by the inward ſprings and wheels of the corporeal Machine*, ſeem, in my opinion, to confirm, that natural ſenſe and reaſon is corporeal, although they do it in an obſcure way, and with intricate arguments. But truly, do what they can, yet they muſt prove reaſon by reaſon; for irrational diſcourſe cannot make proofs and arguments to evince the truth of Nature: But firſt it muſt be proved, what Senſe and Reaſon is, whether Divine or Natural, Corporeal or Immaterial. Thoſe that believe natural ſenſe and reaſon to be immaterial, are in my opinion in a great error, becauſe Nature is purely corporeal, as I have declared before; And thoſe which affirm, that our underſtanding, will and reaſon are in ſome manner like to God's, ſhall never gain my aſſent; for if there be ſo great a difference between God's Underſtanding, Will and Decree, and between Natures, as no compariſon at all can be made betwixt them, much more is there between a part of Nature, *viz.* Man, and the Omnipotent and Incomprehenſible God; for there is an Infinite difference between Divine Attributes and Natural Properties; wherefore

wherefore to ſimilize our Reaſon, Will, Underſtanding, Faculties, Paſsions, and Figures, *&c.* to God, is too high a preſumption, and in ſome manner a blaſphemy. Nevertheleſs, although our natural reaſon and faculties are not like to divine attributes, yet our natural rational perceptions are not always deluſions; and therefore it is certain, that Natures knowing parts, both ſenſitive and rational, do believe a God, that is ſome Being above Nature: But many Writers endeavour rather to make diviſions in Religion, then promote the honour and worſhip of God by a mutual and united agreement, which I confeſs, is an irregularity and imperfection in ſome parts of Nature, and argues, that Nature is not ſo perfect but ſhe has ſome faults and infirmities, otherwiſe ſhe would be a God, which ſhe is not.

11. *Of a General Knowledg and Worſhip of God, given him by all Natural Creatures.*

IT is not the ſight of the beauteous frame of this world (as ſome do conceive) that makes men believe and admire God, but the knowledg of the exiſtence of God is natural, and there's no part of Nature but believes a God; for, certainly, were there not any optick ſenſe in Nature, yet God would be the God of Nature, and be worſhiped and adored by her Creatures, which are her parts; for it is irreli-

gious

gious to ſay, God ſhould want admiration and adoration for want of an eye, or any other of the animal or humane organs; ſurely Nature has more ways then five to expreſs and declare God's Omnipotency: It is Infinite ſenſe and reaſon that doth worſhip and adore God, and the ſeveral perceptions of this ſenſe and reaſon know there is a God that ought to be worſhipped and adored, and not onely Ears, or Eyes, or the like exterior organs of man. Neither is it man alone, but all Creatures, that do acknowledg God; for although God cannot be perfectly known what he is in his Eſſence, yet he may be known in as much as Nature can know of him. But ſince Nature is dividable in her parts, each part has but a particular knowledg of God, which is the cauſe of ſeveral Religions, and ſeveral opinions in thoſe Religions; and Nature being alſo compoſeable, it cauſes a conformity and union of thoſe Opinions and Religions in the fundamental knowledg, which is, the exiſtence of God: Wherefore that which makes a general and united knowledg of the Exiſtence of God, is, that Nature is intire in her ſelf, as having but one body, and therefore all her parts which are of that body have alſo one knowledg of God; for though the parts be different in the Worſhip of God, yet they have not a different belief of the Exiſtence of God; not that God can be perfectly known either by Nature, or any of her parts, for God is Incomprehenſible, and above Nature; but in as much as can be

known, to wit, his Being; and that he is All-powerful, and that not any thing can be compared or likened to him; for he is beyond all draught and likeneſs, as being an Eternal, Infinite, Omnipotent, Incorporeal, Individual, Immovable Being. And thus it is not one part or creature viewing another that cauſes either the knowledg or admiration of God, but the ſoul and life of Nature, which are her ſenſitive and rational parts; and Nature being the Eternal ſervant and Worſhipper of God, God hath been alſo eternally worſhipped and adored; for ſurely God's Adoration and Worſhip has no beginning in time: neither could God be worſhipped and adored by himſelf ſo, as that one part of him ſhould adore and worſhip another; for God is an individual and ſimple Being, not compoſed of parts; and therefore, as it is impoſsible for me to believe, that there is no general Worſhip and Adoration of God, ſo it is impoſsible alſo to believe, that God has not been adored and worſhipped from all Eternity, and that Nature is not Eternal; for although God is the Cauſe of Nature, and Nature the Effect of God, yet ſhe may be Eternal however, there being nothing impoſſible to be effected by God, but he, as an Eternal Cauſe, is able to produce an Eternal Effect, for although it is againſt the rules of Logick, yet it is not above the power of God.

12. *Of a Particular Worſhip of God, given him by thoſe that are his choſen and elect People.*

NAtural Philoſophy is the chief of all ſorts of knowledges; for ſhe is a Guide, not onely to other Sciences, and all ſorts of Arts, but even to divine knowledg it ſelf; for ſhe teaches that there is a Being above Nature, which is God, the Author and Maſter of Nature, whom all Creatures know and adore. But to adore God, after a particular manner, according to his ſpecial Will and Command, requires his Particular Grace, and Divine Inſtructions, in a ſupernatural manner or way, which none but the choſen Creatures of God do know, at leaſt believe, nor none but the ſacred Church ought to explain and interpret: And the proof, that all men are not of the number of thoſe elect and choſen people of God, is, that there can be but one True Religion, and that yet there are ſo many ſeveral and different opinions in that Religion; wherefore the Truth can onely be found in ſome, which are thoſe that ſerve God truly, according to his ſpecial Will and Command, both in believing and acting that which he has been pleaſed to reveal and command in his holy Word: And I pray God, of his infinite mercy, to give me Grace, that I may be one of them, which I doubt not but I ſhall, as long as I follow the Inſtruction of our bleſſed Church, in which I have been educated.

educated. 'Tis true, many perſons are much troubled concerning Free-will and Predeſtination, complaining, that the Chriſtian Church is ſo divided about this Article, as they will never agree in one united belief concerning that point; which is the cauſe of the trouble of ſo many Conſciences, nay, in ſome even to deſpair. But I do verily believe, that if man do but love God from his ſoul, and with all his power, and pray for his ſaving Graces, and offend not any Creature when offences can or may be avoided, and follow the onely Inſtructions of the ſacred Church, not endeavouring to interpret the Word of God after his own fancy and vain imagination, but praying zealouſly, believing undoubtedly, and living virtuouſly and piouſly, he can hardly fall into deſpair, unleſs he be diſpoſed and inclined towards it through the irregularities of Nature, ſo as he cannot avoid it. But I moſt humbly thank the Omnipotent God, that my Conſcience is in peace and tranquility, beſeeching him of his mercy to give to all men the like.

13. *Of the Knowledg of Man.*

SOme Philoſophical Writers diſcourſe much concerning the knowledg of Man, and the ignorance of all other Creatures; but I have ſufficiently expreſſed my opinion hereof, not onely in this, but in my other Philoſophical Works, to wit, that I believe other

other Creatures have as much knowledg as Man, and Man as much in his kind as any other particular Creature in its kind; But their knowledges being different, by reaſon of their different natures and figures, it cauſes an ignorance of each others knowledg; nay, the knowledg of other Creatures many times gives information to Man: As for example; the *Egyptians* are informed how high the River *Nilus* will riſe by the Crocodil's building her neſt higher or lower, which ſhews, that thoſe Creatures fore-ſee or fore-know more then Man can do: alſo many Birds fore-know the riſing of a Tempeſt, and ſhelter themſelves before it comes: the like examples might be given of ſeveral other ſorts of Animals, whoſe knowledg proceeds either from ſome ſenſitive perceptions, or from rational obſervations, or from both; and if there be ſuch a difference in the rational and ſenſitive knowledg of one kind of Creatures, to wit, Animals, much more in all other kinds, as Vegetables, Minerals, Elements, and ſo in all Natures Works: Wherefore he that will ſay, there is no knowledg but in Man, at leaſt in Animal kind; doth, in my opinion, ſay more then ever he will be able to prove; nay, the contrary is ſo evident, as it is without all diſpute: But Man, out of ſelf-love, and conceited pride, becauſe he thinks himſelf the chief of all Creatures, and that all the World is made for his ſake; doth alſo imagine that all other Creatures are ignorant, dull, ſtupid, ſenſeleſs and irrational, and he onely

wiſe, knowing and underſtanding. And upon this ground ſome believe, that Man is bound and decreed to pray to God for all other Creatures, as being not capable to pray for themſelves; like as a Miniſter is bound to pray for his Flock. But really, if the Paſtor ſhould onely pray, and his Sheep not, but they did continue in their ſins, I doubt his Prayers would be of little effect, and therefore it is well if their Prayers and Petitions be joyned together. The like may be ſaid of all other Creatures: for the ſingle knowledg and devotion of Man-kind cannot benefit other Creatures, if they be ignorant, and not capable to know, admire, adore and worſhip God themſelves. And thus no man, with all the force of Logick, will ever be able to prove, that he is either the chief above all other Creatures, or that he onely knows and worſhips God, and no natural Creature elſe: for it is without diſpute, that other Creatures, in their kinds, are as knowing and wiſe, as Man is in his kind.

14. *A Natural Philoſopher cannot be an Atheiſt.*

I Wonder how ſome of our learned Writers can imagine, that thoſe who ſtudy Reaſon and Philoſophy ſhould make them *their Vouchers of Licentious practices, and their ſecret ſcorn of Religion, and ſhould account it a piece of wit and gallantry to be an Atheiſt, and of atheiſm to be a Philoſopher*; conſidering that Reaſon and

and Philoſophy is the onely way that brings and leads us to the natural knowledg of God: for it would be as much abſurdity to ſay, Reaſon and Philoſophy induce Atheiſm, as to ſay, Reaſon is not Reaſon; for Reaſon is the moſt knowing and wiſeſt part of Nature, and the chief knowledg of Nature is to know there is a God; wherefore thoſe that do argue in ſuch a manner, argue without reaſon, and by calling others weak heads and fools, prove themſelves Irrational. But I perceive their ſuppoſition is built upon a falſe ground; for they are of opinion, That the *Exploding of Immaterial ſubſtances, and the unbounded prerogative of Matter muſt needs infer Atheiſm*: which whether it do not ſhew a weaker head then thoſe have that believe no Immaterial ſubſtances in Nature, Rational men may judg: For by this it is evident, that they make Immaterial ſubſtances to be Gods, by reaſon they conclude, that he who believes no Immaterial ſubſtance in Nature is an Atheiſt: And thus by proving others Atheiſts, they commit Blaſphemy themſelves; for he that makes a God of a Creature, ſins as much, if not more, then he who believes no God at all. And as for the unbounded prerogative of Matter, I ſee no reaſon, why men ſhould exclaim againſt it; for why ſhould Immaterial ſubſtances have more prerogative then Material? Truly, I may upon the ſame ground conclude the prerogative of Matter, as well as they do the prerogative of Spirits; for both are but Creatures, and in that

that caſe, one has no more prerogative then the other, for God could make a Material Being to move it ſelf as well as a Material Nothing. Nevertheleſs, although Matter is ſelf-moving, yet it has not a God-like omnipotent power, nor any divine attributes; but an Infinite Natural power, that is, a power to produce infinite effects in her own ſelf, by infinite changes of Motions: Neither doth it argue that Nature is above God, or at leaſt God-like; for I do not ſay, that Nature has her ſelf-moving power of her ſelf, or by chance, but that it comes from God the Author of Nature; which proves that God muſt needs be above Nature, although Nature is Infinite and Eternal; for theſe proprieties do not derogate any thing from the Attributes of God, by reaſon Nature is naturally Infinite, which is Infinite in quantity and parts; but God is a Spiritual, Supernatural and Incomprehenſible Infinite; and as for the Eternity of Nature, it is more probable to Regular Reaſon, then that Nature ſhould have any beginning; for all beginning ſuppoſes time, but in God is no time, and therefore neither beginning nor ending, neither in himſelf, nor in his actions; for if God be from all Eternity, his actions are ſo too, the chief of which is the production or creation of Nature. Thus natural reaſon may conceive that Nature is the Eternal ſervant of God; but how it was produced from all Eternity, no particular or finite creature is able to imagine; by reaſon

that

that not onely God, but alſo Nature is Infinite, and a finite Creature can have no Idea or conception of Infinite.

15. *Of the Rational Soul of Man.*

OF all the opinions concerning the Natural Soul of Man, I like that beſt which affirms the Soul to be a ſelf-moving ſubſtance; but yet I will add a *Material* ſelf-moving ſubſtance; for the Soul of Man is part of the Soul of Nature, and the Soul of Nature is Material; I mean onely the Natural, not the Divine Soul of Man, which I leave to the Church. And this natural Soul, otherwiſe called Reaſon, is nothing elſe but corporeal natural ſelf-motion, or a particle of the pureſt, moſt ſubtil and active part of Matter, which I call animate; which animate Matter is the Life and Soul of Nature, and conſequently of Man, and all other Creatures: For we cannot in Reaſon conceive that Man ſhould be the onely Creature that partakes of this ſoul of Nature, and that all the reſt of Natures parts, or moſt of them, ſhould be ſoul-leſs, or (which is all one) irrational, although they are commonly called, nay believed to be ſuch. Truly, if all other Creatures cannot be denied to be Material, they can neither be accounted Irrational, Inſenſible, or Inanimate, by reaſon there is no part, nay, not the ſmalleſt particle in Nature, our reaſon

is able to conceive, which is not compoſed of Animate Matter, as well as of Inanimate; of Life and Soul, as well as of Body; and therefore no particular Creature can claim a prerogative in this caſe before an other; for there is a thorow mixture of Animate and Inanimate Matter in Nature, and all her Parts. But ſome may object, That if there be ſenſe and reaſon in every part of Nature, it muſt be in all parts alike, and then a ſtone, or any other the like Creature, may have reaſon, or a rational ſoul, as well as Man. To which, I anſwer: I do not deny that a Stone has Reaſon, or doth partake of the Rational Soul of Nature as well as Man doth, becauſe it is part of the ſame Matter Man conſiſts of; but yet it has not animal or humane ſenſe and reaſon, becauſe it is not of animal kind; but being a Mineral, it has Mineral ſenſe and reaſon: for it is to be obſerved, that as Animate ſelf-moving Matter moves not one and the ſame way in all Creatures, ſo there can neither be the ſame way of knowledg and underſtanding, which is ſenſe and reaſon, in all Creatures alike; but Nature being various, not onely in her parts, but in her actions, it cauſes a variety alſo amongſt her Creatures; and hence come ſo many kinds, ſorts and particulars of Natural Creatures, quite different from each other; though not in the General and Univerſal principle of Nature, which is ſelf-moving Matter, (for in this they agree all) yet in their particular interior natures, figures and proprieties. Thus although there be Senſe

and

and Reaſon, which is not onely Motion, but a regular and well-ordered ſelf-motion, apparent in the wonderful and various Productions, Generations, Transformations, Diſſolutions, Compoſitions, and other actions of Nature, in all Natures parts and particles; yet by reaſon of the variety of this ſelf-motion, whoſe ways and modes do differ according to the nature of each particular figure, no figure or creature can have the ſame ſenſe and reaſon, that is, the ſame natural motions which another has; and therefore no Stone can be ſaid to feel pain as an Animal doth, or be called blind becauſe it has no Eyes; for this kind of ſenſe, as Seeing, Hearing, Taſting, Touching and Smelling, is proper onely to an Animal figure, and not to a Stone, which is a Mineral; ſo that thoſe which frame an argument from the want of animal ſenſe and ſenſitive organs, to the defect of all ſenſe and motion; as for example, that a Stone would withdraw it ſelf from the Carts going over it, or a piece of Iron from the hammering of a Smith, conclude, in my opinion, very much againſt the artificial rules of Logick; and although I underſtand none of them, yet I queſtion not but I ſhall make a better argument by the Rules of Natural Logick: But that this difference of ſenſe and reaſon is not altogether impoſsible, or at leaſt improbable to our underſtanding, I will explain by another inſtance. We ſee ſo many ſeveral Creatures in their ſeveral kinds, to wit, Elements, Vegetables, Minerals,

nerals and Animals, which are the chief diſtinctions of thoſe kinds of Creatures as are ſubject to our ſenſitive perceptions; and in all thoſe, what variety and difference do we find both in their exterior figures, and in their interior natures? truly ſuch, as moſt of both ancient and modern Philoſophers have imagined ſome of them, *viz.* the Elements, to be ſimple bodies, and the principles of all other Creatures; nay, thoſe ſeveral Creatures do not onely differ ſo much from each other in their general kinds, but there is no leſs difference perceived in their particular kinds: for example, concerning Elements, what difference is there not between heavy and contracting Earth, and between light and dilating Air? between flowing Water, and aſcending Fire? ſo as it would be an endleſs labour to conſider all the different natures of thoſe Creatures onely that are ſubject to our exterior ſenſes. And yet who dares deny that they all conſiſt of Matter, or are material? Thus we ſee that Infinite Matter is not like a piece of Clay, out of which no figure can be made, but it muſt be clayie, for natural Matter has no ſuch narrow bounds, and is not forced to make all Creatures alike; for though Gold and Stone are both material, nay, of the ſame kind, to wit, Minerals, yet one is not the other, nor like the other. And if this be true of Matter, why may not the ſame be ſaid of ſelf-motion, which is Senſe and Reaſon? Wherefore, in all probability of truth, there is ſenſe and reaſon in a Mineral, as well as in an

Animal,

Animal, and in a Vegetable as well as in an Element, although there is as great a difference between the manner and way of their ſenſitive and rational perceptions, as there is between both their exterior and interior figures and Natures. Nay, there is a difference of ſenſe and reaſon even in the parts of one and the ſame Creature, and conſequently of ſenſitive and rational perception or knowledg; for, as I have declared heretofore more at large, every ſenſitive organ in man hath its peculiar way of knowledg and perception; for the Eye doth not know what the Ear knows, nor the Ear what the Noſe knows, *&c.* All which is the cauſe of a general ignorance between Natures parts: And the chief cauſe of all this difference is the variety of ſelf-motion; for if natural motion were in all Creatures alike, all ſenſe and reaſon would be alike too; and if there were no degrees of matter, all the figures of Creatures would be alike, either all hard, or all ſoft; all denſe, or all rare and fluid, *&c.* and yet neither this variety of motion cauſes an abſence of motion, or of ſenſe and reaſon, nor the variety of figures an abſence of Matter, but onely a difference between the parts of Nature, all being nevertheleſs ſelf-moving, ſenſible and rational, as well as Material; for whereſoever is natural Matter, there is alſo ſelf-motion, and conſequently ſenſe and reaſon. By this we may ſee, how eaſie it is to conceive the actions of Nature, and to reſolve all the *Phænomena* or appearances upon this ground; and I can-

not admire enough, how ſo many eminent and learned Philoſophers have been, and are ſtill puzled about the Natural rational ſoul of man. Some will have her to be a *Light*; ſome an *Entilechy*, or they know not what; ſome the *Quinteſſence of the four Elements*; ſome compoſed of *Earth and Water*, ſome of *Fire*, ſome of *Blood*, ſome an *hot Complexion*, ſome an *heated and diſperſed Air*, ſome an *Immaterial Spirit*, and ſome *Nothing*. All which opinions ſeem the more ſtrange, the wiſer their Authors are accounted; for if they did proceed from ſome ignorant perſons, it would not be ſo much taken notice of; but coming from great Philoſophers, who pretend to have ſearched the depth of Nature, and diſcloſed her ſecrets, it cauſes great admiration in any body, and may well ſerve for an argument to confirm the variety and difference of ſenſitive and rational knowledg, and the ignorance amongſt natural parts; for if Creatures of the ſame particular kind, as men, have ſo many different Perceptions, what may there be in all Nature? But Infinite Nature is wiſe, and will not have that one part of hers ſhould know more then its particular nature requires, and ſhe taking delight in variety, orders her works accordingly.

16. *Whether*

16. *Whether Animal Parts ſeparated from their Bodies have Life.*

SOme do queſtion, Whether thoſe Parts that are ſeparated from animal Bodies do retain life? But my opinion is, That all parts of Nature have life, each according to the propriety of its figure, and that all parts of an animal have animal life and motion as long as they continue parts of the animal body; but if they be ſeparated from the body to which they did belong, although they retain life, yet they do not retain animal life, becauſe their natural motions are changed to ſome other figure when they are ſeparated, ſo that the parts which before had animal life and motion, have then ſuch a kind of life and motion as is proper and natural to the figure into which they are changed or transformed. But ſome ſeparated parts of ſome Creatures retain longer the life of that compoſed figure whoſe parts they were, then others, according as the diſſolving and transforming motions are ſlower or quicker; as for example, in ſome Vegetables, ſome Trees, if their boughs, armes, or branches, be lopt or cut from a lively ſtock, thoſe boughs or branches will many times remain lively, according to the nature of the figure whoſe parts they were, for a good while; nay, if they be ſet or planted, they will grow into the ſame figure as the ſtock was; or if joyned into another ſtock, they will be

be partly of the nature of the ſtock which they did proceed from, and partly of the nature of the ſtock into which they were ingrafted; But yet I do not perceive that animal kind can do the like; for I make a queſtion, whether a man's arm, if cut off from his body, and ſet to another mans body, would grow, and keep its natural form and figure, ſo as to continue an arm, and to receive nouriſhment from that body it is joyned to: nevertheleſs, I will not eagerly contradict it, conſidering that Nature is very different and various both in her productions and nouriſhments, nay, ſo various, as will puzzle, if not confound, the wiſeſt part or Creature of Nature to find them out.

17. *Of the Splene.*

COncerning the ſplene of an animal Creature, whether it may artificially be cut out, and the body cloſed up again, without deſtruction of the animal figure, as ſome do probably conceive, I am not ſo good an artiſt as to give a ſolid judgment thereof; onely this I can ſay, that not all the parts of an animal body are equally neceſſary for life; but ſome are convenient more then neceſſary: Neither do I perfectly know whether the Splene be one of the prime or principal vital parts; for although all parts have life, yet ſome in ſome particular Creatures are ſo neceſſary for the preſervation of life, as they cannot be ſpared; whereas others

others have no ſuch relation to the life of an Animal, but it may ſubſiſt without them: And thus although ſome parts may be ſeparated for ſome time, yet they cannot continue ſo, without a total diſſolution of the animal figure; but both the ſevered, and the remaining parts change from their nature, if not at all times ſuddenly, yet at laſt: And as for the ſpleen, although the ſeparation ſhould not be ſo great a loſs as the pain in looſing it, yet ſome perſons will rather loſe their lives with eaſe, then endure great pain to ſave them: but the queſtion is, if a man was willing to endure the pain, whether he would not die of the wound; for no creature can aſſure another of its life in ſuch a caſe, neither can any one be aſſured of his own; for there is no aſſurance in the caſe of life and death, I mean ſuch a life as is proper to ſuch a Creature, for properly there is no ſuch thing in Nature as death, but what is named death, is onely a change from the diſſolution of ſome certain figure to the compoſition of another.

18. *Of Anatomy.*

I Am not of the opinion of thoſe, who believe that Anatomiſts could gain much more by diſſecting of living then of dead bodies, by reaſon the corporeal figurative motions that maintain life, and nouriſh every part of the body, are not at all perceptible by the exterior Optick ſenſe, unleſs it be more perceiving and ſub-

tiler then the humane optick ſenſe is; for although the exterior groſſer parts be viſible, yet the interior corporeal motions in thoſe parts are not viſible; wherefore the diſſecting of a living Creature can no more inform one of the natural motions of that figure, then one can by the obſerving of an egg, be it never ſo exact, perceive the corporeal figurative motions that produce or make the figure of a Chicken: Neither can artificial optick glaſſes give any advantage to it; for Nature is ſo ſubtil, obſcure and various, as not any ſort or kind of Creatures can trace or know her ways: I will not ſay, but her parts may in their ſeveral Perceptions know as much as can be known; for ſome parts may know and be known of others, and ſo the infinite body may have an infinite information and knowledg; but no particular Creature, no not one kind or ſort of Creatures can have a perfect knowledg of another particular Creature; but it muſt content it ſelf with an imperfect knowledg, which is a knowledg in Parts. Wherefore it is as improbable for humane ſight to perceive the interior corporeal figurative motions of the parts of an animal body by Anatomy, as it is for a Micrographer to know the interior parts of a figure by viewing the exterior; for there are numerous corporeal figures or figurative motions of one particular Creature, which lie one within another, and moſt commonly the interior are quite different from the exterior; as for example, the outward parts of a mans body are not like his inward

parts;

parts; for his brain, ſtomack, liver, lungs, ſplene, midriff, heart, guts, *&c.* are of different figures, and one part is not another part, no not of the like nature or conſtitution; neither hath a man a face on the inſide of his head, and ſo of the reſt of his parts; for every part has beſides its exterior, interior figure and motions, which are not perceptible by our exterior ſenſes. Nevertheleſs there is ſome remedy to ſupply this ſenſitive ignorance by the perception of Reaſon; for where ſenſe fails, reaſon many times informs, it being a more clear and ſubtile perception then ſenſe is; I ſay many times, becauſe reaſon can neither be always aſſured of knowing the Truth; for particular Reaſon may ſometimes be deceived as well as ſenſe; but when the Perceptions both of ſenſe and reaſon agree, then the information is more true, I mean regular ſenſe and reaſon, not irregular, which cauſes miſtakes, and gives falſe informations; alſo the Preſentation of the objects ought to be true, and without deluſion.

19. *Of preſerving the Figures of Animal Creatures.*

I Am abſolutely of the opinion of thoſe, who believe Natural Philoſophy may promote not onely Anatomy, but all other Arts, for elſe they would not be worth the taking of pains to learn them by reaſon the rational perceptions are beyond the ſenſitive. I am alſo of opinion, that there may be an Art to preſerve the exterior

exterior ſhapes of ſome animal bodies, but not their interior forms; for although their exterior ſhapes, even after the diſſolution of the animal figure, may be ſomewhat like the ſhapes and figures of their bodies when they had the life of an animal, yet they being transformed into ſome other Creatures by the alteration of their interior figurative motions, can no ways keep the ſame interior figure which they had when they were living animals. Concerning the preſerving of blood by the means of ſpirit of Wine, as ſome do probably believe, my opinion is, That ſpirit of Wine, otherwiſe call'd Hot-water, if taken in great quantity, will rather dry up or putrifie the blood, then preſerve it; nay, not onely the blood, but alſo the more ſolid parts of an animal body, inſomuch as it will cauſe a total diſſolution of the animal figure; and ſome animal Creatures that have blood, will be diſſolved in Wine, which yet is not ſo ſtrong as extracts or ſpirit of Wine: But blood mingled with ſpirit of Wine, may perhaps retain ſomewhat of the colour of blood, although the nature and propriety of blood be quite altered. As for the inſtance of preſerving dead fiſh or fleſh from putrifying and ſtinking, alledged by ſome; we ſee that ordinary ſalt will do the ſame with leſs coſt; and as ſpirits of Wine, or hot Waters, may like ſalt preſerve ſome dead bodies from corruption, ſo may they, by making too much or frequent uſe of them, alſo cauſe living bodies to corrupt and diſſolve ſooner then otherwiſe

otherwiſe they would do. But Chymiſts are ſo much for extracts, that by their frequent uſe and application, they often extract humane life out of humane bodies, inſtead of preſerving it.

20. *Of Chymiſtry and Chymical Principles.*

IT is ſufficiently known, and I have partly made mention above, what a ſtir Natural Philoſophers do keep concerning the principles of Nature and natural Beings, and how different their opinions are. The Schools following *Ariſtotle* are for the Four Elements, which they believe to be ſimple bodies, as having no mixture in themſelves, and therefore fitteſt to be principles of all other mixt or compounded bodies; But my Reaſon cannot apprehend what they mean by ſimple bodies; I confeſs that ſome bodies are more mixt then others; that is, they conſiſt of more differing parts, ſuch as the learned call Heterogeneous; as for example, Animals conſiſt of fleſh, blood, skin, bones, muſcles, nerves, tendons, griſtles, and the like, all which are parts of different figures: Other bodies again are compoſed of ſuch parts as are of the ſame nature, which the learned call Homogeneous; as for example, Water, Air, &c. whoſe parts have no different figures, but are all alike each other, at leaſt to our perception; beſides, there are bodies which are more rare and ſubtile than others, according to the degrees

of their natural figurative motions, and the compoſi-on of their parts; Nevertheleſs I ſee no reaſon, why thoſe Homogeneous bodies ſhould be called ſimple, and all others mixt, or compoſed of them; much leſs why they ſhould be principles of all other natural bodies; for they derive their origine from matter, as well as the reſt; ſo that it is onely the different compoſure of their parts, that makes a difference between them, proceeding from the variety of ſelf-motion, which is the cauſe of all different figures in nature; for as ſeveral work-men join in the building of one houſe, and ſeveral men in the framing of one Government; ſo do ſeveral parts in the making or forming of one compoſed figure.

But they'l ſay, it is not the likeneſs of parts that makes the Four Elements to be principles of natural things; but becauſe there are no natural bodies, beſides the mentioned Elements that are not compoſed of them, as is evident in the diſſolution of their parts; for example, A piece of Green wood that is burning in a Chimney, we may readily diſcern the Four Elements in its diſſolution, out of which it is compoſed; for the *fire* diſcovers it ſelf in the flame, the ſmoak turns into *air*, the *water* hiſſes and boils at the ends of the wood, and the aſhes are nothing but the Element of *earth*: But if they have no better arguments to prove their principles, they ſhall not readily gain my conſent; for I ſee no reaſon why wood ſhould be compoſed of the Four Elements, becauſe it burns, ſmoaks, hiſſes, and turns into aſhes; Fire is none of its natu-

natural ingredients, but a different figure, which being mixt with the parts of the wood, is an occaſion that the Wood turns into aſhes; neither is Water a principle of Wood; for Water is as much a figure by it ſelf, as Wood or Fire is, which being got into the parts of the wood, and mixt with the ſame, is expelled by the fire, as by its oppoſite; but if it be a piece of dry, and not of green wood, where is then the water that boils out? Surely dry wood hath no leſs principles, then green wood; and as for ſmoak, it proves no more, that it is the Element of Air in Wood, then that Wood is the Element of Fire; for Wood, as experience witneſſes, may laſt in water, where it is kept from the air; and ſmoak is rather an effect of moiſture, occaſioned into ſuch a figure by the commixture of fire.

Others, as *Helmont*, who derives his opinion from *Thales* and others of the ancient Philoſophers, are only for the Element of Water; affirming, that that is the ſole principle, out of which all natural things conſiſt; for ſay they, the Chaos whereof all things were made, was nothing elſe but water, which firſt ſetled into ſlime, and then condenſed into ſolid earth; nay, ſome endeavour to prove by Chymical Experiments, that they have diſpoſed water according to their Chymical way, ſo that it viſibly turn'd into earth, which earth produced animals, vegetables and minerals. But put the caſe it were ſo, yet this doth not prove water to be the onely principle of all natural beings; for firſt, we cannot

not think, that animals, vegetables and minerals are the onely kinds of creatures in Nature; and that there are no more but them: for nature being infinitely various, may have infinite Worlds, and ſo infinite ſorts of Creatures: Next I ſay, that the change of water into earth, and of this again into vegetables, minerals and animals, proves no more but what our ſenſes perceive every day, to wit, that there is a perpetual change and alteration in all natural parts, cauſed by corporeal ſelf-motion, by which rare bodies change into denſe, and denſe into rare, water into ſlime, ſlime into earth, earth into animals, vegetables and minerals, and thoſe again into earth, earth into ſlime, ſlime into water, and ſo forth: But I wonder why rational men ſhould onely reſt upon water, and go no further, ſince daily experience informs them, that water is changed into vapour, and vapour into air; for if water be reſolveable into other bodies, it cannot be a prime cauſe, and conſequently no principle of Nature; wherefore they had better, in my opinion, to make Air the principle of all things. 'Tis true, Water may produce many creatures, as I ſaid before, by a compoſition with other, or change of its own parts; but yet I dare ſay, it doth kill or deſtroy as many, nay more, then it produces; witneſs vegetables and others, which Huſbandmen and Planters have beſt experience of; and though ſome animals live in water as their proper Element; yet to moſt it is deſtructive, I mean, as for their particular natures; nay if men do but dwell in a moiſt

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place, or near marriſh grounds, or have too much watery humors in their bodies, they'l ſooner die then otherwiſe. But put the caſe, water were a principle of Natural things, yet it muſt have motion, or elſe it would never be able to change into ſo many figures; and this motion muſt either be naturally inherent in the ſubſtance of water, or it muſt proceed from ſome exterior agent; if from an exterior agent, then this agent muſt either be material, or immaterial; alſo if all motion in Nature did proceed from preſſure of parts upon parts; then thoſe parts which preſs others, muſt either have motion inherent in themſelves; or if they be moved by others, we muſt at laſt proceed to ſomething which has motion in it ſelf, and is not moved by another, but moves all things; and if we allow this, Why may not we allow ſelf-motion in all things? for if one part of Matter has ſelf-motion, it cannot be denied of all the reſt: but if immaterial, it muſt either be God himſelf, or created ſupernatural ſpirits: As for God, he being immoveable, and beyond all natural motion, cannot actually move Matter; neither is it Religious, to ſay, God is the Soul of Nature; for God is no part of Nature, as the ſoul is of the body; And immaterial ſpirits, being ſupernatural, cannot have natural attributes or actions, ſuch as is corporeal, natural motion. Wherefore it remains, that Matter muſt be naturally ſelf-moving, and conſequently all parts of Nature, all being ma-

terial; ſo that not onely Water, Earth, Fire, and Air, but all other natural bodies whatſoever, have natural ſelf-motion inherent in themſelves; by which it is evident, that there can be no other principle in Nature, but this ſelf-moving Matter, and that all the reſt are but effects of this onely cauſe.

Some are of opinion, That the three Catholick or Univerſal principles of Nature, are, Matter, Motion and Reſt; and others with *Epicure*, that they are Magnitude, Figure and Weight; but although Matter and Motion, or rather ſelf-moving Matter, be the onely principle of Nature; yet they are miſtaken in dividing them from each other, and adding reſt to the number of them, for Matter and Motion are but one thing, and cannot make different principles; aud ſo is figure, weight and magnitude. 'Tis true, Matter might ſubſiſt without Motion, but not Motion without Matter; for there is no ſuch thing as an immaterial Motion, but Motion muſt neceſſarily be of ſomething; alſo if there be a figure, it muſt of neceſsity be a figure of ſomething; the ſame may be ſaid of magnitude and weight, there being no ſuch thing as a mean between ſomething and nothing, that is, between body, and no body in Nature: If Motion were immaterial, it is beyond all humane capacity to conceive, how it could be abſtracted from ſomething; much more, how it could be a principle to produce a natural being, it might eaſier be believed, that Matter was periſhable or reduceable into

into nothing, then that motion, figure and magnitude ſhould be ſeparable from Matter, or be immaterial, as the opinion is of thoſe who introduce a *Vacuum* in Nature; and as for Reſt, I wonder how that can be a principle of any production, change or alteration, which it ſelf acts nothing.

Others are for Atomes and inſenſible particles, conſiſting of different figures and particular natures; not otherwiſe united but by a bare appoſition, as they call it; by which although perhaps the compoſed body obtains new qualities, yet ſtill the ingredients retain each their own Nature, and in the deſtruction of the compoſed body, thoſe that are of one ſort aſſociate, and return into Fire, Water, Earth, *&c.* as they were before: But whatever their opinion of Atoms be, firſt I have heretofore declared that there can be no ſuch things as ſingle bodies or Atomes in Nature: Next, if there were any ſuch particles in compoſed bodies, yet they are but parts or effects of Matter, and not principles of Nature, or Natural beings.

Laſtly, Chymiſts do conſtitute the principles of all natural bodies, Salt, Sulphur and Mercury. But although I am not averſe from believing that thoſe ingredients may be mixt with other parts of Nature in the compoſition of natural figures, and that (eſpecially) Salt may be extracted out of many Creatures; yet that it ſhould be the conſtitutive principle of all other natural

tual parts or figures, ſeems no ways conformable to truth; for ſalt is no more then other effects of Nature; and although ſome extractions may convert ſome ſubſtances into ſalt figures, and ſome into others, (for Art by the leave of her Miſtreſs, Nature, doth oftentimes occaſion an alteration of natural Creatures into artificial) yet theſe extractions cannot inform us how thoſe natural creatures are made, and of what ingredients they conſiſt; for they do not prove, that the ſame Creatures are compoſed of Salt, or mixt with Salt; but cauſe onely thoſe ſubſtances which they extract, to change into ſaline figures, like as others do convert them into Chymical ſpirits; all which are but Hermaphroditical effects, that is, between natural and artificial; Juſt as a Mule partakes both of the nature or figure of a Horſe, and an Aſs: Nevertheleſs, as Mules are very beneficial for uſe, ſo many Chymical effects, provided they be diſcreetly and ſeaſonably uſed; for Minerals are no leſs beneficial to the life and health of Man, then Vegetables, and Vegetables may be as hurtful and deſtructive as Minerals by an unſeaſonable and unskilful application; beſides, there may be Chymical extracts made of Vegetables as well as of Minerals, but theſe are beſt uſed in the height or extremity of ſome diſeaſes, like as cordial waters in fainting fits; and ſome Chymical ſpirits are as far beyond cordial waters, as fire is beyond ſmoak; which cannot be but dangerous, and unfit to be uſed; except it be

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to encounter oppoſite extreams. By extreams, I mean not the extreams of Nature, but the height of a diſtemper, when it is grown ſo far, that it is upon point of deſtroying or diſſolving a particular animal figure; for Nature, being infinite, has no extreams; neither in her ſubſtance, nor actions; for ſhe has nothing that is oppoſite to Matter, neither is there any ſuch thing as moſt or leaſt in Nature, ſhe being infinite, and all her actions are ballanced by their oppoſites; as for example, there is no dilation but hath oppoſite to it contraction; no condenſation but has its oppoſite, *viz.* rarefaction; no compoſition but hath its oppoſite, diviſion; no gravity without levity; no groſsneſs without purity; no animate without inanimate; no regularity without irregularity: All which produces a peaceable, orderly, and wiſe Government in Natures Kingdom, which wiſe Artiſts ought to imitate.

But you may ſay, How is it poſsible, That there can be a peaceable and orderly Government, where there are ſo many contrary or oppoſite actions; for contraries make war, not peace?

I anſwer: Although the actions of Nature are oppoſite, yet Nature, in her own ſubſtance is at peace, becauſe ſhe is one and the ſame; that is, one material body, and has nothing without her ſelf to oppoſe and croſs her; neither is ſhe ſubject to a general change, ſo as to alter her own ſubſtance from being Matter, for ſhe is Infinite and Eternal: but becauſe ſhe is ſelf-

moving, and full of variety of figures, this variety cannot be produced without variety of actions, no not without oppoſition; which oppoſition is the cauſe, that there can be no extreams in particulars; for it ballances each action, ſo that it cannot run into infinite, which otherwiſe would breed a horrid confuſion in Nature.

And thus much of Principles: Concerning the particulars of Chymical preparations, I being not verſed in that Art, am not able to give my judgment thereof, neither do I underſtand their terms and expreſsions: as firſt, what Chymiſts mean by *Fixation*; for there's nothing in Nature that can properly be called fixt, becauſe Nature, and all her parts, are perpetually ſelf-moving; onely Nature cannot be altered from being material, nor from being dependant upon God.

Neither do I apprehend what ſome mean by the *unlocking of bodies*, unleſs they underſtand by it, a ſeparation of natural parts proper for artificial uſes; neither can natural effects be ſeparated by others, any otherwiſe but occaſionally; ſo that ſome parts may be an occaſion of ſuch or ſuch alterations in other parts. But I muſt ſay this, that according to humane ſenſe and reaſon, there is no part or particle in Nature which is not alterable, by reaſon Nature is in a perpetual motion, and full of variety. 'Tis true, ſome bodies, as Gold and Mercury, ſeem to be unalterable from their particular natures; but this onely appears thus to our ſenſes,

ſenſes, becauſe their parts are more fixt and retentive then others, and no Art has been found out as yet which could alter ther proper and particular figures, that is, untie and diſſolve, or rather cauſe an alteration of their corporeal retentive motions, that bind them into ſo fixt and conſiſtent a body; but all that is mixt with them, has hitherto been found too weak for the alteration of ther inherent motions; Nevertheleſs, this doth not prove, that they are not altogether unalterable; for though Art cannot do it, yet Nature may; but it is an argument that they are not compoſed of ſtraying Atomes, or moſt minute particles; for not to mention what I have often repeated before, that there cannot be ſuch moſt minute bodies in Nature, by reaſon Nature knows of no extreams, it is altogether improbable, nay, impoſsible, that wandering corpuſcles ſhould be the cauſe of ſuch fixt effects, and by their aſſociation conſtitute ſuch indiſſoluble maſſes or cluſters, as ſome do conceive, which they call primary concretions; for there is no ſuch thing as a primary concretion or compoſition in Nature; onely there are ſeveral ſorts and degrees of motions, and ſeveral ſorts of compoſitions; and as no particular creature can know the ſtrength of motion, ſo neither can it know the degrees of ſtrength in particular natural bodies. Wherefore although compoſition and diviſion of parts are general motions, and ſome figures may be more compoſed then others, that is, conſiſt of more or fewer parts then others; yet

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there is none that hath not a compoſition of parts: The truth is, there is nothing prime or principal amongſt the effects of Nature, but onely the cauſe from which they are produced, which is ſelf-moving Matter, which is above particular effects: yet Nature may have more ways then our particular reaſon can apprehend; and therefore it is not to be admired that Camphor, and the like bodies do yield differing effects, according to the different occaſions that make them move thus or thus; for though changes and alterations of particulars may be occaſioned by others; yet they move by their own corporeal figurative motions; as it is evident by the power of fire, which makes other bodies move or change their parts and figures, not by its own transforming motion, but onely by giving an occaſion to the inherent figurative motions of thoſe bodies, which by imitating the motions of fire, change into ſuch or ſuch figures by their own proper, innate and inherent motions; otherwiſe if the alteration of combuſtible bodies proceeded from fire, they would all have the like motions, which is contradicted by experience. I will not deny, but there is as much variety in occaſioning, as there is in acting; for the imitation is according to the object, but the object is not the immediate agent, but onely an occaſional efficient; ſo that, according to my opinion, there is no ſuch difference, as the learned make between Patient and Agent, when they call the exterior occaſional cauſe; as for example, Fire, the Agent; and

and the combuſtible body the Patient; for they conceive that a body thrown into fire, acts nothing at all, but onely in a paſsive way ſuffers the fire to act upon it, according to the degree of its own, to wit, the fires ſtrength, which ſenſe and reaſon perceives otherwiſe; for to paſs by what I mentioned before, that thoſe bodies on which they ſuppoſe fire doth work, change according not to the fires, but their own inherent figurative motions; it is moſt certain, that if Nature and all her parts be ſelf-moving, which regular reaſon cannot deny; and if Self-motion be corporeal, then every part of Nature muſt of neceſsity move by its own motion; for no body can impart motion to another body, without imparting ſubſtance alſo; and though particular motions in particular bodies may change infinite ways, yet they cannot quit thoſe bodies, ſo as to leave them void and deſtitute of all motion, becauſe Matter and Motion are but one thing; and therefore though fire be commixed with the parts of the fuel, yet the fuel alters by its own motion, and the fire doth but act occaſionally; and ſo do Chymical ſpirits or extracts, which may cauſe a ſeparation, and alter ſome bodies as readily as fire doth; for they are a certain kind of fire, to wit, ſuch as is called a dead or liquid fire; for a flaming fire, although it be fluid, yet it is not liquid: The ſame may be ſaid of the Antimonial-Cup. For it is not probable to ſenſe and reaſon, there ſhould be certain inviſible little bodies, that paſs

out of the Cup into the liquor, and cauſe ſuch effects, no more then there are magnetical effluviums iſſuing out of the Load-ſtone towards Iron, there being many cauſes, which neither impart nor loſe any thing in the production of their effects; but the liquor that is within the Antimonial Cup, does imitate the corporeal figurative motions of the Cup, and ſo produces the ſame effects, as are proper to Antimony, upon other bodies or parts of Nature. In the ſame manner does the Blood-ſtone ſtop bleeding; not by imparting inviſible Atomes or Rays to the affected parts, (or elſe if it were long worn about ones body, it would be waſted, at leaſt alter its proper figure and vertue) but by being imitated by the corporeal figurative motions of the diſtempered parts. Thus many other examples could be alledged to prove, that natural motions work ſuch or ſuch effects within their own parts, without receiving any from without, that is, by imitation, and not by reception of Motion. By which it is evident, that properly there is no paſsive, or ſuffering body in Nature, except it be the inanimate part of Matter, which in its own nature is moveleſs or deſtitute of motion, and is carried along with, and by the animate parts of Matter: However, although inanimate Matter has no motion inherent in it ſelf, as it is inanimate; yet it is ſo cloſely mixt with the animate parts, that it cannot be conſidered without motion, much leſs be ſeparable from it; and therefore although it acts not of

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it ſelf, yet it acts by vertue of the animate parts of Matter.

Next: I cannot conceive what ſome Chymiſts mean, when they call thoſe Principles or Elements, which, they ſay, compoſed bodies conſiſt of, diſtinct ſubſtances; for though they may be of different figures, yet they are not of different ſubſtances; becauſe there is but one onely ſubſtance in Nature, which is Matter, whoſe ſeveral actions cauſe all the variety in Nature. But if all the parts of Natural bodies ſhould be called Principles or Elements, then there would be infinite Principles in Nature, which is impoſsible; becauſe there can be no more but one principle, which is, ſelf-moving Matter; and although ſeveral Creatures, by the help of fire, may be reduced or diſſolved into ſeveral different particles, yet thoſe particles are not principles, much leſs ſimple bodies, or elſe we might ſay, as well, that aſhes are a principle of Wood: Neither are they created anew, becauſe they are of another form or figure then when compoſed into one concrete body; for there's nothing that is material, which is not pre-exiſtent in Nature; no nor figure, motion, or the like, all being material, although not always ſubject to our humane ſenſitive perception; for the variation of the corporeal figurative motions blindeth our particular ſenſes, that we cannot perceive them, they being too ſubtile to be diſcerned either by Art or humane perception. The truth is, if we could ſee the corporeal figurative motions

tions of natural creatures, and the aſſociation and diviſion of all their parts, we ſhould ſoon find out the cauſes which make them to be ſuch or ſuch particular natural effects; but Nature is too wiſe to be ſo eaſily known by her particulars.

Wherefore Chymiſts need not think they can create any thing anew; for they cannot challenge to themſelves a divine power, neither can there be any ſuch thing as a new Creation in Nature, no not of an Atome; Nor can they annihilate any thing; they will ſooner waſte their Eſtates, then reduce the leaſt particle of Matter into nothing; and though they make waſte of ſome parts of natural bodies, yet thoſe are but changes into other figures, there being a perpetual inſpiration and expiration, that is, compoſition and diviſion of parts; but compoſition is not a new Creation, nor diviſion an annihilation; and though they produce new forms, as they imagine; yet thoſe forms, though they be new to them, are not new in Nature; for all that is material, has been exiſtent in Nature from all Eternity; ſo that the combination of parts cannot produce any thing that is not already in Nature. Indeed the generation of new figures, ſeems to me much like the generation of new motions; which would put God to a perpetual Creation, and argue that he was not able to make Nature or Matter perfect at firſt, or that he wanted imployment. But, ſay they, it is not Matter that is created anew, but onely

onely figures or forms. I anſwer: If any one can ſhew me a figure without Matter, I ſhall be willing to believe it; but I am confident Nature cannot do that, much leſs Art, which is but a particular effect; for as Matter cannot be without Figure, ſo neither can Figure be without Matter, no more then body without parts, or parts without body; and if ſo, no figure or form can be created without Matter, there being no ſuch thing as a ſubſtanceleſs form. Chymiſts ſhould but conſider their own particular perſons; as whether they were generated anew, or had been in Nature before they were got of their Parents; if they had not been pre-exiſtent in Nature, they would not be natural, but ſupernatural Creatures; becauſe they would not ſubſiſt of the ſame matter, as other Creatures do. Truly, Matter being Infinite, how ſome new material creatures could be created without ſome parts of this Infinite Matter, is not conceivable by humane ſenſe and reaſon; for infinite admits of no addition; but if there could be an addition, it would preſuppoſe an annihilation, ſo that at the ſame time when one part is annihilating or periſhing, another muſt ſucceed by a new creation, which is a meer Paradox.

But that which puzles me moſt, is, how thoſe ſubſtances, which they call *Tria Prima*, and principles of natural things, can be generated anew; for if the principles be generated anew, the effects muſt be ſo too; and ſince they, according to their ſuppoſition,

are Catholick or Univerſal principles, all natural effects muſt have their origine from them, and be, like their principles, created continually anew; which how it be poſsible, without the deſtruction of Nature, is beyond my reaſon to conceive. Some endeavour to prove, by their Artificial Experiments, that they have and can produce ſuch things out of natural bodies, which never were pre-exiſtent in them; as for example, Glaſs out of Vegetables, without any addition of forreign parts onely, by the help of fire. To which I anſwer: That, in my opinion, the ſame Glaſs was as much pre-exiſtent in the matter of thoſe Vegetables, and the Fire, and in the power of their corporeal figurative motions, as any other figure whatſoever; otherwiſe it would never have been produced; nay, not onely Glaſs, but millions of other figures might be obtained from thoſe parts, they being ſubject to infinite changes; for the actions of ſelf-moving Matter are ſo infinitely various, that according to the mixture, or compoſition and diviſion of parts, they can produce what figures they pleaſe; not by a new Creation, but only a change or alteration of their own parts; and though ſome parts act not to the production of ſuch or ſuch figures; yet we cannot ſay, that thoſe figures are not in Nature, or in the power of corporeal, figurative ſelf-motion; we might ſay, as well, that a man cannot go, when he ſits; or has no motion, when he ſleeps; as believe, that it is not in the power of Nature to produce

duce ſuch or ſuch effects or actions, when they are not actually produced; for, as I ſaid before, although Nature be but one material ſubſtance, yet there are infinite mixtures of infinite parts, produced by infinite ſelf-motion, infinite ways; in ſo much, that ſeldom any two Creatures, even thoſe of one ſort, do exactly reſemble each other.

But ſome may ſay, How is it poſsible, That figure, being all one with Matter, can change; and matter remain ſtill the ſame without any change or alteration?

I anſwer: As well as an animal body can put it ſelf into various and different poſtures, without any change of its interior animal figure; for though figure cannot ſubſiſt without matter, nor matter without figure, generally conſidered; yet particular parts of matter are not bound to certain particular figures: Matter in its general nature remains always the ſame, and cannot be changed from being Matter, but by the power of ſelf-motion it may change from being ſuch or ſuch a particular figure: for example, Wood is as much matter as Stone; but it is not of the ſame figure, nor has it the ſame interior innate motions which Stone hath, becauſe it has not the like compoſition of parts, as other creatures of other figures have; and though ſome figures be more conſtant or laſting then others, yet this does not prove, that they are not ſubject to changes as well as thoſe that alter daily, nay, every moment; much

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leſs, that they are without motion; for not all motions are dividing or diſſolving; but ſome are retentive, ſome compoſing, ſome attractive, ſome expulſive, ſome contractive, ſome dilative, and infinite other ſorts of motions, as 'tis evident by the infinite variety which appears in the differing effects of Nature: Nevertheleſs it is no conſequence, that, becauſe the effects are different, they muſt alſo have different principles; For firſt, all effects of Nature are material; which proves, they have but one principle, which is the onely infinite Matter: Next, they are all ſelf-moving; which proves, that this material principle has ſelf-motion; for without ſelf-motion there would be no variety or change of figures, it being the nature of ſelf-motion to be perpetually acting.

Thus Matter and Self-motion, being inſeparably united in one infinite body, which is ſelf-moving material Nature, is the onely cauſe of all the infinite effects that are produced in Nature, and not the *Ariſtotelean* Elements, or Chymiſts *Tria prima*, which ſenſe and reaſon perceives to be no more but effects; or elſe if we ſhould call all thoſe Creatures principles, which by the power of their own inherent motions, change into other figures, we ſhall be forced to make infinite principles, and ſo confound principles with effects; and after this manner, that which is now an effect, will become a principle; and what is now a principle, will become an effect; which will lead our ſenſe and reaſon into

into a horrid confuſion and labyrinth of ignorance.

Wherefore I will neither follow the Opinions of the Ancient, nor of our Moderns in this point, but ſearch the truth of Nature, by the light of regular reaſon; for I perceive that moſt of our modern Writings are not fill'd with new Inventions of their own, but like a lumber, ſtuff'd with old Commodities, botch'd and dreſs'd up anew, contain nothing but what has been ſaid in former ages. Nor am I of the opinion of our Divine Philoſophers, who mince Philoſophy and Divinity, Faith and Reaſon, together; and count it Irreligious, if not Blaſphemy, to aſſert any other principles of Nature, then what they (I will not ſay, by head and ſhoulders) draw out of the Scripture, eſpecially out of *Geneſis*, to evince the finiteneſs, and beginning of Nature; when as *Moſes* doth onely deſcribe the Creation of this World, and not of Infinite Nature: But as Pure natural Philoſophers do not meddle with Divinity, or things Supernatural, ſo Divines ought not to intrench upon Natural Philoſophy.

Neither are Chymiſts the onely natural Philoſophers, becauſe they are ſo much tied to the Art of Fire, and regulate or meaſure all the effects of Nature according to their Artificial Experiments; which do delude rather then inform their ſenſe and reaſon; and although they pretend to a vaſt and greater knowledg then all the reſt, yet they have not dived ſo deep into

Nature yet, as to perceive that ſhe is full of ſenſe and reaſon, which is life and knowledg; and in parts, orders parts proper to parts, which cauſes all the various motions, figures and changes in the infinite parts of Nature; Indeed, no Creature, that has its reaſon regular, can almoſt believe, that ſuch wiſe and orderly actions ſhould be done either by chance, or by ſtraying Atomes, which cannot ſo conſtantly change and exchange parts, and mix and join ſo properly, and to ſuch conſtant effects as are apparent in Nature. And as for Galeniſts, if they believe that ſome parts of Nature connot leave or paſs by other parts, to join, meet, or encounter others, they are as much in an error as Chymiſts, concerning the power of fire and furnace; for it is moſt frequently obſerved thus amongſt all ſorts of Animals; and if amongſt Animals, I know no reaſon but all other kinds and ſorts of Creatures may do the like; nay, both ſenſe and reaſon inform us they do, as appears by the ſeveral and proper actions of all ſorts of drugs, as alſo Minerals and Elements, and the like; ſo that none ought to wonder how it is poſsible, that medicines that muſt paſs through digeſtions in the body, ſhould, neglecting all other parts, ſhew themſelves friendly onely to the brain or kidnies, or the like parts; for if there be ſenſe and reaſon in Nature, all things muſt act wiſely and orderly, and not confuſedly; and though Art, like an Emulating Ape, ſtrives to imitate Nature, yet it is ſo far from producing natural figures,

figures, that at beſt, it rather produces Monſters inſtead of natural effects; for it is like the Painter, who drew a Roſe inſtead of a Lion; nevertheleſs Art is as active as any other natural Creature, and doth never want imployment; for it is like all other parts, in a perpetual ſelf-motion; and although the interior actions of all other parts do not appear to our ſenſes, yet they may be perceived by regular reaſon; for what ſenſe wants, reaſon ſupplies, which oftener rectifies the ſtraying and erring ſenſes, then theſe do reaſon, as being more pure, ſubtile and free from labouring on the inanimate parts of Matter, then ſenſe is, as I have often declared; which proves, that reaſon is far beyond ſenſe; and this appears alſo in Chymiſtry, which yet is ſo much for ſenſitive experiments; for when the effects do not readily follow, according to our intentions, reaſon is fain to conſider and enquire into the cauſes that hinder or obſtruct the ſucceſs of our deſigns. And if reaſon be above ſenſe, then Speculative Philoſophy ought to be preferred before the Experimental, becauſe there can no reaſon be given for any thing without it. I will not ſay, that all Arts have their firſt origine from Reaſon; for what we name chance, does often preſent to the ſenſitive perception ſuch things which the rational does afterwards take into conſideration; but my meaning is, that for the moſt part, Reaſon leads and directs the ways of Art; and I am of opinion, that Contemplative Philoſophy is the beſt Tutoreſs, and gives the

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ſureſt inſtructions to Art, and amongſt the reſt to the Art of Chymiſtry, which no doubt is very profitable to man many ſeveral ways, and very ſoveraign in many deſperate diſeaſes, if diſcreetly and moderately uſed; but if Chymical medicines ſhould be ſo commonly applied as others, they would ſooner kill, then cure; and if *Paracelſus* was as frequently practiſed as *Galen*, it would be as bad as the Plague: Wherefore Chymical Medicines are to be uſed as the extreme Unction in deſperate caſes, and that with great moderation and diſcretion.

21. *Of the Univerſal* Medicine, *and of Diſeaſes.*

I Am not of the opinion, that there can be a Univerſal Medicine for all diſeaſes, except it be proved, that all kinds of Diſeaſes whatſoever, proceed from one cauſe; which I am ſure can never be done, by reaſon there is as much variety in the cauſes of diſeaſes, as in the diſeaſes themſelves. You may ſay, All diſeaſes proceed but from irregular motions. I anſwer: Theſe irregular motions are ſo numerous, different and various, that all the Artiſts in Nature are not able to rectifie them. Nay, they might ſooner make or create a new Matter, then rectifie the irregularities of Nature more then Nature her ſelf is pleaſed to do; for though Art may be an occaſion of the changes of ſome parts or motions, of their compoſitions and diviſions, imitations,

tions, and the like; like as a Painter takes a copy from an original, yet it cannot alter infinite Nature; for a man may build or pull down a houſe, but yet he cannot make the materials, although he may fit or prepare them for his uſe: ſo Artiſts may diſſolve and compoſe ſeveral parts ſeveral ways, but yet they cannot make the matter of thoſe parts; and therefore although they may obſerve the effects, yet they cannot always give a true or probable reaſon why they are ſo, nor know the ſeveral particular cauſes which make them to be ſo: To ſee the effects, belongs to the perception of ſenſe; but to judg of the cauſe, belongs onely to reaſon; and ſince there is an ignorance as well as a perceptive knowledg in Nature, no creature can abſolutely know or have a thorow perception of all things, but according as the corporeal figurative motions are, ſo are the perceptions; not onely in one compoſed figure, but alſo in every part and particle of the ſame figure; for one and the ſame parts may make ſeveral perceptions in ſeveral Creatures, according to their ſeveral figurative motions. But reaſon being above ſenſe, is more inſpective then ſenſe; and although ſenſe doth many times inform reaſon, yet reaſon being more ſubtile, piercing and active, doth oftener inform and rectifie the ſenſes when they are irregular; nay, ſome rational parts inform others, like as one man will inform another of his own voluntary conceptions, or of his exterior perceptions; and ſome ſenſitive parts will inform others, as one Ar-

tiſt another; and although Experimental Phyloſophy is not to be rejected, yet the Speculative is much better, by reaſon it guides, directs and governs the Experimental; but as knowledg and underſtanding is more clear, where both the rational and ſenſitive perception do join; ſo Experimental and Speculative Philoſophy do give the ſureſt informations, when they are joined or united together.

But to return to the Univerſal Medicine; although I do not believe there is any, nor that all Diſeaſes are curable; yet my advice is, that no applications of remedies ſhould be neglected in any diſeaſe whatſoever; becauſe diſeaſes cannot be ſo perfectly known, but that they may be miſtaken, and ſo even the moſt experienced Phyſician may many times be deceived, and miſtake a curable diſeaſe for an incurable; wherefore Trials ſhould be made as long as life laſts. Of Dropſies, Cancers, Kings-evils, and the like diſeaſes, I believe ſome may be cureable, eſpecially if taken at the firſt beginning, and that without great difficuly, and in a ſhort time; but ſuch diſeaſes, which conſiſt in the decay of the vital parts, I do verily believe them incurable; as for example, thoſe Dropſies, Conſumptions, dead Palſies, *&c.* which are cauſed either through the decay of the vital parts, or through want of radical ſubſtance: Neither do I think a natural Blindneſs, Dumbneſs, Deafneſs, or Lameneſs, curable; nor natural Fools, or Idiots: Nay, I fear, the

the beſt Chymiſt will be puzled to cure a ſetled or fixt Gout, or the Stone, in ſuch bodies as are apt to breed it; for Stones are produced ſeveral ways, and as their productions are different, ſo are they; wherefore although many do pretend to great things, yet were their cures ſo certain, they would be more frequent. I will not ſay, but many times they perform great cures; but whether it be by chance, or out of a fundamental knowledg, I know not; but ſince they are ſo ſeldom performed, I think them rather to be caſual cures. In my opinion, the ſureſt way, both in Diſeaſes and Applications of Remedies, is, to obſerve the corporeal, figurative motions of both; which are beſt and ſureſt perceived by the rational perception, becauſe the ſenſitive is more apt to be deluded.

22. *Of Outward Remedies.*

REmedies, which are applied outwardly, may be very beneficial; by reaſon the bodies of Animal Cratures are full of Pores, which ſerve to attract nouriſhment, or foreign matter into the body, and to vent ſuperfluities. Beſides, the interior parts of thoſe bodies, to which outward Remedies are applied, may imitate the qualities or motions of the remedies, by the help of their own ſenſitive motions, and therefore the application of outward remedies is not altogether to be rejected. But yet I do not believe, that they do always

ways, or in all perſons, work the like effects; or that they are ſo ſure and ſoveraign as thoſe that are taken inwardly. The truth is, as Remedies properly and ſeaſonably applied, can work good effects; ſo they may alſo produce ill effects, if they be uſed improperly and unſeaſonably; and therefore wiſe Phyſicians and Surgeons know by experience, as well as by learning and reaſon, what is beſt for their Patients in all kind of diſtempers: Onely this I will add concerning diſeaſes, that in the productions of diſeaſes, there muſt of neceſſity be a conjunction of the Agent and Patient, as is evident even in thoſe diſeaſes that are cauſed by conceit; for if a man ſhould hear of an infectious diſeaſe, and be apprehenſive of it; both the diſcourſe of him that tells it, and the mind of him that apprehends it, are Agents or cauſes of that diſeaſe, in the body of the Patient, and concur in the production of the diſeaſe; the difference is onely, that the diſcourſe may be called a remoter cauſe, and the rational motions, or the mind of the Patient, a nearer or immediate cauſe; for as ſoon as the mind doth figure ſuch a diſeaſe, the ſenſitive, corporeal motions, immediately take the figure from the mind, and figure the diſeaſe in the ſubſtance or parts of the body of the Patient; the Rational proving the Father, the Senſitive the Mother; both working by conſent. Whereby we may alſo conclude, that diſeaſes, as well as other ſorts of Creatures, are made by Natures corporeal, figurative motions; and thoſe parts that occaſion

occaſion others to alter their natural motions, are moſt predominant; for although Nature is free, and all her parts ſelf-moving; yet not every part is free to move as it pleaſes, by reaſon ſome parts over-power others, either through number, ſtrength, ſlight, ſhape, opportunity, or the like advantages; and natural Philoſophy is the onely ſtudy that teaches men to know the particular natures, figures and motions of the ſeveral compoſed parts of Nature, and the rational perception is more intelligent then the ſenſitive.

23. *Of ſeveral ſorts of Drink, and* Meat.

SOme Phyſicians, when they diſcourſe of ſeveral ſorts of Drinks, and Meats, do relate ſeveral wonderful Cures which ſome Drinks have effected: And truly, I am of opinion, that they may be both beneficial, and hurtful, according as they are uſed properly, and temperately; or improperly, and exceſsively: but I find there are more ſeveral ſorts for curioſity and luxury, then for health and neceſsity: Small Ale, or Beer, is a ſoveraign remedy to quench drought; and one Glaſs of Wine, proves a Cordial; but many Glaſſes may prove a kind of poyſon, putting men oftentimes into Feavers, and the like diſeaſes. And for Diet-drinks, I believe they are very good in ſome ſorts of diſeaſes; and ſo may Tea, and Coffee, and the water of Birches, for any thing I know, for I never had any experience

of them; but I obſerve; that theſe latter drinks, Tea, and Coffee, are now become mode-drinks, and their chief effects are to make good fellowſhip, rather then to perform great cures; for I can hardly believe, that ſuch weak liquors, can have ſuch ſtrong effects. Concerning ſeveral ſorts of Meats, I leave them to experienced Phyſicians, for they know beſt what is fit for the bodies of their Patients; Onely, as for the preſervation, or keeping of ſeveral ſorts of meats from putrefaction, I will ſay this; That I have obſerved, that what will keep dead Fleſh, and Fiſh, as alſo Vegetables, from putrefaction; will deſtroy living Animals; for if living Animals ſhould, like dead fleſh, be pickled up, and kept from air, they would ſoon be ſmother'd to death; and ſo would Fire, which yet is no Animal. Neither can Ladies and Gentlewomen preſerve their lives, as they do ſeveral ſorts of fruit: Nevertheleſs, both this, and ſeveral other Arts, are very neceſſary and profitable for the uſe of man, if they be but fitly and properly imployed; but we may obſerve, that when as other Creatures have no more then what is neceſſary for their preſervation, Man troubles himſelf with things that are needleſs; nay, many times, hurtful: Which is the cauſe there are ſo many unprofitable Arts, which breed confuſion, inſtead of proving beneficial and inſtructive.

24. *Of*

24. *Of Fermentation.*

FErmentation, of which *Helmont*, and his followers make ſuch a ſtir, as 'tis enough to ſet all the world a fermenting or working; is nothing elſe, but what is vulgarly called digeſtion; ſo that it is but a new term for an old action: And theſe digeſtions or Fermentations, are as various and numerous as all other actions of Nature, to wit, Reſpiration, Evacuation, Dilation, Contraction, *&c.* for action and working are all one.

But there are good and ill Fermentations; thoſe are done by a ſympathetical agreement of parts, but theſe by an antipathetical diſagreement: Thoſe tend to the preſervation of the ſubject, theſe to its deſtruction; Thoſe are regular, theſe irregular: So that there are numerous ſorts of fermentations, not onely in ſeveral ſorts of Creatures, but in ſeveral parts of one and the ſame Creature: for Fermentation or Digeſtion is according to the compoſition of the fermenting or digeſtive parts, and their motions.

25. *Of the Plague.*

IHave heard, that a Gentleman in *Italy* fancied he had ſo good a Microſcope, that he could ſee Atomes through it, and could alſo perceive the Plague; which he

he affirmed to be a ſwarm of living animals, as little as Atomes, which entred into mens bodies, through their mouths, noſtrils, ears, *&c.*

To give my opinion hereof, I muſt confeſs, That there are no parts of Nature, how little ſoever, which are not living and ſelf-moving bodies; nay, every Reſpiration is of living parts; and therefore the Infection of the Plague, made by the way of reſpiration, cannot but be of living parts; but that theſe parts ſhould be animal Creatures, is very improbable to ſenſe and reaſon; for if this were ſo, not onely the Plague, but all other infectious diſeaſes would be produced the ſame way, and then fruit, or any other ſurfeiting meat, would prove living Animals: But I am ſo far from believing, that the Plague ſhould be living animals, as I do not believe it to be a ſwarm of living Atomes, flying up and down in the Air; for if it were thus, then thoſe Atomes would not remain in one place, but infect all the places they paſſed through; when as yet we obſerve, that the Plague will often be but in one Town or City of a Kingdom, without ſpreading any further. Neither do I believe (as ſome others ſay) that it is always the heat of the Sun, or Air, that cauſes, or at leaſt increaſes the Plague; for there are Winter-plagues, as well as Summer-plagues; and many times the Plague decreaſes in Summer, when it is hot; and increaſes in Winter, when it is cold: Beſides, the air being generally hot, over all the Country or King-

dom,

dom, would not onely cauſe the infection in one Town or City, but in all other parts.

Therefore, my opinion is, that as all other diſeaſes are produced ſeveral manners or ways, ſo likewiſe the Plague; and as they generally do all proceed from the irregularities of corporeal natural motions, ſo does alſo the Plague: But ſince it is often obſerved, that all bodies are not infected, even in a great Plague; it proves, that the Infection is made by imitation; and as one and the ſame agent cannot occaſion the like effects in every Patient; as for example, Fire in ſeveral ſorts of Fuels; nay, in one and the ſame ſort; as for example, in Wood; for ſome wood takes ſooner fire, and burns more clearly, and diſſolves more ſuddenly then ſome other; ſo it is alſo with the Plague, and with all other diſeaſes, that proceed from an outward Infection; for the exterior agent is not an immediate cauſe, but onely an occaſion that the Patient has ſuch or ſuch motions; and as the imitating motions are ſtronger or weaker, quicker or ſlower; ſo is the breeding of the diſeaſe. I will not deny, but there may be ſuch figurative, corporeal motions in the Air or Earth, which may cauſe infections amongſt thoſe animals that live within the compaſs thereof, and many times the Air or Earth may be infected by Animals; But ſome particulars not being infected at all, though they be frequently with thoſe that have the Plague; it proves, that the figurative motions of their bodies do not imi-

tate thoſe motions that make the Plague; when as, if the Air were filled with infectious Atomes, none would eſcape; nay, they would not onely enter into Men, but Beaſts and Birds, *&c.*

Concerning the Spotted-Plague, it proceeds from a general irregularity of diſſolving motions, which cauſe a general Gangrene of all the body; and to find a cure for this diſeaſe, is as difficult, as to find the Philoſophers-ſtone; for though many pretend to cure it, yet none has as yet performed it; what may be done hereafter I know not; but I doubt they will be more able to raiſe a man from the dead, or renew old age, and change it into youth, then do it.

As for other Diſeaſes, I refer the Reader to my other Works, eſpecially my *Philoſophical Opinions*; for my deſign is not now to make a Phyſical Treatiſe; and there they will find of the diſeaſe called Ague, that its cauſe is the irregularity of the digeſtive or concoctive motions, and ſo of the reſt: for in this preſent work I intended nothing elſe, but to make reflections upon Experimental Philoſophy, and to explain ſome other Points in Natural Philoſophy, for the better underſtanding of my own Opinions, which if I have done to the ſatisfaction of the Reader, I have my aim, and deſire no more.

26. *Of Reſpiration.*

HAving made mention both in the foregoing diſcourſe, and ſeveral other places of this Book, of Reſpiration ; I'le add to the end of this part a full declaration of my opinion thereof.

Firſt, I believe that there are Reſpirations in all Creatures and Parts of Nature, performed by the ſeveral paſſages of their bodies, to receive forreign, and diſcharge ſome of their own parts. Next, I believe, That thoſe Reſpirations are of different ſorts, according to the different ſorts of Creatures. Thirdly, As the Reſpirations of natural Parts and Creatures are various and different, ſo are alſo the pores or paſſages through which they reſpire ; as for example, in Man, and ſome other animals, the Noſtrils, Ears, Mouth, Pores of the skin, are all of different figures : And ſuch a difference may alſo be between the ſmaller pores of the skin, of the ſeveral parts of man, as between the pores of his breaſt, arms, legs, head, *&c.* alſo the grain or lines of a man's skin may be different, like as ſeveral figures of wrought Silks or Stuffs ſold in Mercers ſhops ; which if they did make ſeveral colours by the various refractions, inflections, reflections and poſitions of light, then certainly a naked man would appear of many ſeveral colours, according to the difference of his

his pores or grains of the skin, and the different poſition of light. But ſenſe and reaſon does plainly obſerve, that the poſitions of light do not cauſe ſuch effects; for though every ſeveral man, for the moſt part, hath a peculiar complexion, feature, ſhape, humor, diſpoſition, *&c.* different from each other, ſo that it is a miracle to ſee two men juſt alike one another in all things; yet light alters not the natural colour of their bodies, no more then it can alter the natural figures and ſhapes of all other parts of their bodies; but what alteration ſoever is made, proceeds from the natural corporeal motions of the ſame body, and not from the various poſitions, refractions and reflections of light; whoſe variety in Nature, as it is infinite, ſo it produces alſo infinite figures, according to the infinite Wiſdom of Nature, which orders all things orderly and wiſely.

OBSERVA-

OBSERVATIONS
UPON THE
OPINIONS
OF SOME
Ancient Philoſophers.

ALthough the indiſpoſition of my body did in a manner diſſwade me from ſtudying and writing any more; yet the great deſire I had to know the Opinions of the Ancient Philoſophers, and whether any came near my own, overcame me ſo much, that even to the prejudice of my own health, I gave my ſelf to the peruſing of the works of that learned Author Mr. *Stanly*, wherein he deſcribes the lives and opinions of the ancient Philoſophers; in which I found ſo much difference betwixt their conceptions and my own in Natural Philoſophy, that were it allowable or uſual

for our ſex, I might ſet up a ſect or School for my ſelf, without any prejudice to them; But I, being a woman, do fear they would ſoon caſt me out of their Schools; for though the Muſes, Graces and Sciences are all of the female gender, yet they were more eſteemed in former ages, then they are now; nay, could it be done handſomely, they would now turn them all from Females into Males; ſo great is grown the ſelf-conceit of the Maſculine, and the diſregard of the Female ſex.

But to let that paſs: The Opinions of the Ancient, though they are not exempt from errors no more then our Moderns, yet are they to be commended that their conceptions are their own, and the iſſue of their own wit and reaſon; when as moſt of the opinions of our Modern Philoſophers, are patched up with theirs: Some whereof do altogether follow either *Ariſtotle*, *Plato*, *Epicurus*, *Pythagoras*, &c. others make a mixture of ſeveral of their Opinions, and others again take ſome of their opinions, and dreſs them up new with ſome additions of their own; and what is worſt, after all this, inſtead of thanks, they reward them with ſcorn, and rail at them; when as, perhaps, without their pains and induſtry, our age would hardly have arrived to that knowledg it has done. To which ungrateful and unconſcionable act, I can no ways give my conſent, but admire and honour both the ancient, and all thoſe that are real Inventors of noble and profitable Arts and Sciences,

Sciences, before all thoſe that are but botchers and brokers; and that I do in this following part, examine, and mark ſome of their opinions, as erroneous; is not out of a humor to revile or prejudice their wit, induſtry, ingenuity and learning, in the leaſt; but onely to ſhew, by the difference of their opinions and mine, that mine are not borrowed from theirs, as alſo to make mine the more intelligible and clear, and, if poſsible, to find out the truth in Natural Philoſophy; for which were they alive, I queſtion not, but I ſhould eaſily obtain their pardon.

1. *Upon the Principles of* Thales.

Thales, according to Hiſtorical Relation, was the firſt that made diſquiſitions upon Nature, and ſo the firſt Natural Philoſoper. His chief points in Philoſophy are theſe: 1. He ſays, That Water is the Principle of all natural bodies: 2. That Nature is full of Dæmons, and ſpiritual ſubſtances: 3. That the Soul is a ſelf-moving Nature, and that it both moves it ſelf, and the body: 4. That there is but one World, and that finite: 5. That the World is animate, and God is the ſoul thereof, diffuſed through every Part: 6. That the World is contained in a place: 7. That Bodies are diviſible into infinite.

Concerning the Firſt, *viz.* That Water is the Principle of all natural things; *Helmont* doth embrace this

this opinion, as I have declared in my *Philoſophical Letters*, and in the foregoing part of this Book, and have given withal my reaſons why water cannot be a principle of natural things, becauſe it is no more but a natural effect; for though humidity may be found in many parts or Creatures of Nature, yet this doth not prove, that water is a principle of all natural bodies, no more then fire, earth, air, or any other Creature of Nature; and though moſt Philoſophers are of opinion, that Elements are ſimple bodies, and all the reſt are compoſed of them, yet this is no ways probable to reaſon, becauſe they conſiſt of the ſame matter as other bodies do, and are all but effects of one cauſe or principle, which is infinite Matter.

Next, That Nature is full of Dæmons, or Spiritual ſubſtances, is againſt ſenſe and reaſon; for what is incorporeal, is no part of Nature, and upon this account, the ſoul cannot be immaterial, although he makes her to be a ſelf-moving Nature; for what has a natural motion, has alſo a natural body; becauſe Matter and Motion are but one thing; neither can a Spiritual ſubſtance move a corporeal, they being both of different natures.

As for the World, That there is but one, I do willingly grant it, if by the World he did mean Nature; but then it cannot be finite. But *Thales* ſeems to contradict himſelf in this Theoreme, when as he grants, that Bodies are diviſible in infinite; for if there be infinite

infinite actions, as infinite diviſions in Nature; then ſurely the body of Nature it ſelf muſt be infinite.

Next, he ſays, That God is the Soul of the World; which if ſo, God being Infinite, he cannot have a Finite body to animate it; for a Finite Body, and an Infinite Soul, do never agree together; but that God ſhould be the Soul of the World, no regular Reaſon can allow, becauſe the Soul of Nature muſt be corporeal, as well as the Body; for an incorporeal ſubſtance cannot be mixed with a corporeal. Next, the World, as the body of Nature, being dividable, it would follow, that God, which is the Soul, would be dividable alſo: Thirdly, Every part of the world, would be a part of God, as partaking of the ſame nature; for every part, if the Soul be diffuſed through all the Body, would be animate.

Laſtly, Concerning Place, as that the World is contained in a place; my opinion is, that place is nothing elſe, but an affection of body, and in no ways different or ſeparable from it; for whereſoever is body, or matter, there is place alſo; ſo that place cannot be ſaid to contain the world, or elſe it would be bigger then the world it ſelf; for that which contains, muſt needs in compaſs or extent, exceed that which it contains.

2. *Some few Obſervations on* Plato's *Doctrine.*

1. PLato ſays, That Life is twofold, Contemplative, and Active; and that Contemplation is an office of the Intellect, but Action an operation of the Rational ſoul?

To which I anſwer, firſt, That I know no other difference between Intellect and Reaſon, but that Intellect is an effect, or rather an Eſſential Propriety of Reaſon, if Reaſon be the Principle of Nature; for the Rational part is the moſt Intelligent part of animate Matter. Next, I ſay, That Contemplation is as much an action, as any other action of Nature, although it be not ſo groſs as the action of the body; for it is onely an action of the mind, which is more pure and ſubtile then either the ſenſitive or inanimate parts of matter are, and acts within it ſelf, that is, in its own ſubſtance or degree of Matter.

2. He ſays, That Senſe is a paſsion of the Soul.

I anſwer: There is as much difference between Senſe, and the Soul, as there is between Senſe, and Reaſon, or a ſenſitive life, and a rational ſoul; for the Rational parts of Matter, are not the Senſitive, nor the Senſitive the Rational; a Fool may have his ſenſe regular, and his reaſon irregular; and therefore ſenſe and reaſon are not one and the ſame, although they have an

an inſeparable Communion in the body or ſubſtance of Nature.

3. He argues thus: That which moves in it ſelf, as being the principle of Motion in thoſe things which are moved, is always moved, and conſequently Immortal, Ungenerable and Incorruptible; but the Soul is ſo. *Ergo, &c.*

I anſwer: Natural Matter being thus ſelf-moving, is the ſame.

4. Form, ſays he, is joined to Matter.

I anſwer: Form and Matter are but one thing; for it is impoſsible to ſeparate Matter from Form, or Form from Matter; but what is not dividable, is not compoſable; and what cannot be ſeparated, cannot be joined.

5. Qualities, ſays he, are incorporeal, becauſe they are accidents.

I anſwer: If Qualities be Incorporeal, they do not belong to Nature; for ſince the Principle of Nature is Matter, all that is natural, muſt alſo be material or corporeal; and therefore all natural qualities or accidents muſt of neceſsity be corporeal, by reaſon quality can no more be divided from Matter, then figure, magnitude, colour, place, and the like; all which are but one and the ſame with body, without any ſeparation or abſtraction.

6. What *Plato* affirms, of that which never is, and never had a Beginning, and of that which has a Beginning,

ginning, and not a Being, is more then he or any body can rationally prove; for what never was, nor is, no man can know or imagine; becauſe all what is known or imagined, has its real being, if not without, yet within the Mind; and all thoughts have not onely a being, but a material being in Nature; nay, even the Thought of the exiſtence of a Deity, although Deity it ſelf is Immaterial.

7. I wonder ſo witty a Philoſopher as *Plato* can believe, that Matter in it ſelf, as it is the Principle of Nature, is void of all form; for he affirms himſelf, That whatſoever hath parts, hath alſo figure; but Matter has parts, (by reaſon there can be no ſingle part in Nature, but whereſoever is body or matter, there are parts alſo) and therefore matter cannot be void of figure. But if by Form, he mean the innate and inherent ſelf-motion of Matter, he contradicts himſelf; for how can all things be made of matter, as their principle, if matter be deſtitute of ſelf-motion? Wherefore Infinite Matter has not onely ſelf-motion, but alſo figure, though not a circumſcribed or limited figure: Neither can it be proved, that Nature, being infinite, is not qualitative, no more then ſhe can be proved to have no parts, or to be finite. In ſhort, it is impoſſible for my reaſon to believe, that Matter ſhould be capable of, and ſubject to all forms, and yet be void of all quality, form, and ſpecies; for whatſoever has neither form, figure, nor quality, is no body, and therefore

therefore *Plato's* Matter is immaterial, or incorporeal. If it were possible, that there could be some converse or meeting between his and my soul, I would ask his soul how he would prove, that one and the same thing could exist, and not exist at one and the same time; that is, how matter could be no matter, or something and nothing at the same time; and whence it came to be thus? For though our reason does believe, that the Omnipotent Creator can make something of nothing, and reduce something into nothing; yet no reason is able to comprehend how God could make a being which is neither something, nor nothing; neither corporeal, nor incorporeal. But *Plato* concludes that Matter is destitute of all form, because it is subject to change of forms and figures in its particulars, which is a very great mistake; for the changes of forms or figures, do not alter the nature of Matter; but prove rather, that wheresoever there is form or figure, there is matter also; so that none can be without the other at no time; A piece of Wax may be transformed into millions of figures, but it can never be deprived of all figure; no more can Matter.

8. Concerning Ideas, *Plato's* Opinion is, That they are Principles of Nature, and the Eternal Notions of God, perfect in themselves; or an External exemplar of things which are according to Nature. But I would ask him, what Notions are, and whence they come; and, if they be pictures or patterns of all things in

Nature, What makes or cauſes them? He will ſay, They are the Thoughts of God. But what Creature in the Univerſe is able to deſcribe the Thoughts or Notions of God? For though I do humbly acknowledg God to be the Author of Nature; and with the greateſt reverence and fear, adore that Infinite Deity; yet I dare not attribute any Notions or Ideas to God, nor in any manner or way expreſs him like our humane condition; for I fear I ſhould ſpeak irreverently of that Incomprehenſible Eſſence, which is above all finite Capacity, Reaſon, or Idea.

Next, he ſays, That thoſe Ideas are not of things made by Art, nor of ſingulars, nor of preternatural accidents, as diſeaſes, nor of vile and abject things, nor of Relatives. Which if ſo, I would enquire whence thoſe effects do proceed? for if the Eternal Ideas, according to his opinion, are Principles of all natural things, they muſt alſo be principles of the aforementioned effects, they being alſo natural: If they do not proceed from any principle, they muſt proceed from themſelves; which cannot be, by reaſon they are effects of Nature: but if they have another principle beſides the Eternal Notions, or Ideas; then there muſt be another power beſides theſe, which power would oppoſe the divine power, or the power God has endued Nature withal. In ſhort, If the Ideas of God be the Principle of Nature, they muſt be a principle of all natural things; for that which is not Univerſal, can never

never be a principle: which if ſo, then the Ideas or Notions of God, would not onely be the Cauſe and Principle of all Goodneſs, but of all evil effects; and if there be more wicked or evil ſouls in the World then good ones, there would proceed more evil from God then good; which is not onely impoſsible, but impious to affirm. But Perchance he will ſay, That the Ideas of the aforementioned effects are generated and annihilated. I anſwer: As for Nature, ſhe being Eternal and Infinite, is not ſubject to new generations and annihilations in her particulars; neither can Principles be generated and annihilated; and as for ſupernatural or immaterial Ideas, they being incorporeal, cannot be ſubject to a new generation, or annihilation; for what is ſupernatural, is not capable of natural affections, nor ſubject to a natural capacity any ways. In truth, *Plato*, with his Ideas in God, in the Angelick Mind, in the Soul, *&c.* makes a greater ſtir then needs, and breeds more confuſion in Nature then ſhe really knows of; for Nature is as eaſie to be underſtood in her general principles, that regular ſenſe and reaſon may conceive them without framing any ſuch Ideas or Minds. He diſtinguiſhes alſo the Idea or exemplar of an houſe which the architect has in his mind; and as his pattern exactly ſtrives to imitate, from the building or ſtructure of the houſe it ſelf by this, that he calls that intelligible, but this material and ſenſible; when as yet the form or pattern in the Architects mind, is as much

much material, as the builded houſe it ſelf; the onely difference is, that the Exemplar, or figure in the Mind, is formed of the rational matter onely, which is the pureſt, fineſt and ſubtileſt degree, and the other is made of groſſer materials.

9. The Soul of the World he makes immaterial, but the body material; and hence he concludes the World to be Eternal; becauſe the ſoul is ſuch which is not capable to be without body; and although it be incorporeal, yet its office is to rule and govern corporeal Nature. But concerning the Soul of Nature, I have ſufficiently declared my opinion thereof in other places; to wit, that it is impoſsible ſhe ſhould be immaterial; for if the body of Nature be dividable and compoſable, the ſoul muſt be ſo too; but that which is not material, cannot admit of diviſion, nor compoſition; wherefore the ſoul cannot be immaterial, or elſe ſome parts of the world would be deſtitute of a ſoul, which might deſerve it as well as the reſt, which would argue a partiality in the Creator. I wonder wiſe men will attribute bodily affections to immaterial beings, when as yet they are not able to conceive or comprehend them; by which they confound and diſturb Nature, which knows of no Immaterials, but her Eſſence is Matter.

10. As for his Ethicks, where he ſpeaks of Beauty, Strength, Proportion, *&c.* I'le onely ſay this, That of all theſe, there are different ſorts; for there's the ſtrength

ſtrength of the Mind, and the ſtrength of the Body; and theſe are ſo various in their kinds and particulars, that they cannot be exactly defined; alſo Beauty, conſidering onely that which is of the body, there are ſo many ſeveral ſorts, conſiſting in features, ſhapes and proportions of bodies, as it is impoſsible to deſcribe properly what Beauty is, and wherein it really conſiſts; for what appears beautiful to ſome, may ſeem ill-favoured to others; and what ſeems extraordinary fair or handſom to one, may have but an indifferent character of another; ſo that in my opinion, there's no ſuch thing as a Univerſal Beauty, which may gain a general applauſe of all, and be judged alike by every one that views it; nay, not by all immortal ſouls, neither in body, nor mind; for what one likes, another may diſlike; what one loves, another may hate; what one counts good, another may proclaim bad; what one names juſt, another may call unjuſt: And as for Temperance which he joins to Juſtice; what may be temperance to one, may be intemperance to another; for no particular knows the juſt meaſures of Nature; nay, even one and the ſame thing which one man loves to day, he may chance to hate, or at leaſt diſlike, to morrow; for Nature is too various to be conſtant in her particulars, by reaſon of the perpetual alterations and changes they are ſubject to; which do all proceed from ſelf-moving Matter, and not from incorporeal Ideas. Thus Rational ſouls are changeable, which may be

proved by the changes of their Fancies, Imaginations, Thoughts, Judgments, Underſtandings, Conceptions, Paſsions, Affections, and the like; all which are effects or actions of the rational ſoul; nay, not onely natural rational ſouls, but even divine ſouls, if they were all good, none would be bad, nor vary as we find they do; and therefore I cannot believe that all ſouls can have the ſame likeneſs, being ſo different amongſt themſelves.

3. *Upon the Doctrine of* Pythagoras.

1. THe moſt Learned of the *Pythagoreans* do aſſert, That things apparent to ſenſe, cannot be ſaid Principles of the Univerſe; for whatſoever conſiſts of things apparent to ſenſe, is compounded of things not apparent; and a Principle muſt not conſiſt of any thing, but be that of which the thing conſiſts.

To which I anſwer: Firſt, I cannot conceive what they mean by things apparent to ſenſe; if they mean the ſenſitive organs of humane Creatures, they are miſtaken; for there may be, and are really many things in Nature, which are not apparent to humane ſenſe, and yet are not Principles, but natural effects; wherefore not all things that are not apparent to humane ſenſe, are principles of Nature: Beſides, there may be many other Creatures which do far exceed Men

Men or Animals in their ſenſitive perceptions; and if things be not ſubject to humane ſenſe, they may be ſubject to the ſenſe of other Creatures. But if by ſenſe they mean the ſenſitive life of Nature, they commit a far greater error; for there's nothing which is not ſubject, or has a participation of this Univerſal ſenſe in Nature, as well as of Reaſon. 'Tis true, particular ſenſes cannot perceive the infinite figurative motions of Nature, neither can the ſubtileſt ſenſe have a perception of the interior, innate, figurative motions of any other Creature; but I do not ſpeak of particular ſenſes, but of that infinite ſenſe and reaſon, which is ſelf-moving Matter, and produces all the effects of Nature.

But you'l ſay, How can Infinite be a principle of particular Finites?

I anſwer: As well as the Infinite God can be the Author of Nature, and all natural Beings; which though they be finite in their particular figures, yet their number is Infinite.

2. Concerning the Numbers of *Pythagoras*, which he makes ſo great a value of; I confeſs, whereſoever are Parts, and compoſitions, and diviſions of parts, there muſt alſo be number, but yet as parts cannot be principles, ſo neither can numbers; for ſelf-moving Matter, which is the onely principle of Nature, is infinite, and there are no more principles but this one. 'Tis true, regular compoſitions and diviſions are made by conſent of parts, and preſuppoſe number and harmony,

mony; but number and harmony cannot be the cauſe of any orderly productions, without ſenſe and reaſon; for how ſhould parts agree in their actions, if they did not know each other, or if they had no ſenſe nor reaſon? truly there can be no motion without ſenſe, nor no orderly motion without reaſon; and though *Epicurus's* Atomes might move by chance without reaſon, yet they could not move in a concord or harmony, not knowing what they are to do, or why, or whither they move; nay, if they had no ſenſe, it is impoſsible they ſhould have motion; and therefore, in my opinion, it is the rational and ſenſitive parts which by conſent make number and harmony; and thoſe that will deny this ſenſitive and rational ſelf-moving Matter, muſt deny the principles of motion, and of all conſtant ſucceſsions of all ſorts and kinds of Creatures, nay, of all the variety that is in Nature. Indeed I am puzled to underſtand Learned men, what they mean by Principles, by reaſon I ſee that they ſo frequently call Principles thoſe which are but effects of Nature; ſome count the Elements Principles; ſome Numbers; ſome Ideas; ſome Atomes; and the like: And by their different opinions, they confirm, that there is as well diſcord and diviſion, as there is concord and compoſition of the parts of Nature; for if this were not, there would be no contrary actions, and conſequently no variety of figures and motions.

3. What-

3. Whatsoever is comprehended by man, says *Pythagoras*, is either body, or incorporeal; amongst which Incorporeals he reckons also time: But this opinion is contradicted by regular sense and reason; for no humane, nor any other natural Creature, is able to comprehend an incorporeal, it self being corporeal; and as for time, place, and the like, they are one and the same with body, which if so, how can they be incorporeal? Neither is it posible, that incorporeal Beings, should be principles of Nature, because there is as much difference between corporeal, and incorporeal, as there is between Matter, and no Matter; but how no Matter can be a principle of matterial effects, is not conceiveable. For God, though he be an Immaterial Essence, and yet the Author of material Nature, and all natural Beings; yet he is not a natural, material Principle, out of which all natural things consist, and are framed, but a supernatural, decreeing, ordering and commanding Principle, which cannot be said of created Incorporeals; for though Nature moves by the powerful Decree of God, yet she cannot be governed by finite Incorporeals; by reason they being finite, have no power over a material Infinite, neither can there be any other Infinite Spirit, but God himself.

4. *Pythagoras's* Doctrine is, That the World, in its nature, is Corruptible, but the Soul of the World is Incorruptible; and that without the Heavens, there

is an Infinite *Vacuum*, into which, and out of which the World repairs. As for the corruptibility of the World, I cannot underſtand how the Soul can be incorruptible, and the World it ſelf corruptible; for if the World ſhould be deſtroyed, what will become of the Soul? I will not ſay, That the All-powerfull God may not deſtroy it when he pleaſes, but the infiniteneſs and perpetual ſelf-motion of Nature, will not permit that Nature ſhould be corruptible in it ſelf; for God's Power goes beyond the power of Nature. But it ſeems *Pythagoras* underſtands by the World, no more then his ſenſes can reach; ſo that beyond the Celeſtial Orbs he ſuppoſes to be an infinite *Vacuum*; which is as much as to ſay, an infinite Nothing; and my reaſon cannot apprehend how the World can breath and reſpire into nothing, and out of nothing.

5. Neither am I able to conceive the Truth of his aſſertion, That all lines are derived from points, and all numbers from unity, and all figures from a circle; for there can be no ſuch thing as a ſingle point, a ſingle unity, a ſingle circle in Nature, by reaſon Nature is infinitely dividable and compoſable; neither can they be principles, becauſe they are all but effects.

6. Concerning the Soul, the *Pythagoreans* call her a ſelf-moving number, and divide her into two parts, rational and irrational, and derive the beginning of the ſoul from the heat of the brain.

The Souls of Animate Creatures, as they call them, they

they allow to be rational, even thoſe which others call irrational, to wit, thoſe in all other animals beſides man; but they act not according to reaſon, for want of ſpeech. The Rational Soul, ſay they, is immortal, and a ſelf-moving number; where by number, they underſtand the Mind, which they call a Monad. Theſe, and the like opinions, which *Pythagoreans* have of the Soul, are able to puzle *Solomons* wit or underſtanding to make any conformity of Truth of them; and I will not ſtrictly examine them, but ſet down theſe few Paradoxes.

1. I cannot apprehend, how the ſame ſoul can be divided into ſubſtances of ſuch differing, nay, contrary proprieties and natures, as to be rational and irrational, mortal and immortal.

2. How the heat of the brain can be the Principle of the ſoul; ſince the ſoul is ſaid to actuate, move, and inform the body, and to be a Principle of all bodily actions: Beſides, all brains have not the like Temperament, but ſome are hot, and ſome cold, and ſome hotter then others; whence it will follow, that all animals are not endued with the like ſouls; but ſome ſouls muſt of neceſsity be weaker, and ſome ſtronger then others.

3. How Irrational Creatures can have a Rational Soul, and yet not act according to Reaſon for want of ſpeech: for Irrational Creatures are called ſo, becauſe they are thought to have no reaſon; and as for ſpeech,

it

it is an effect, and not a Principle of Reaſon; for ſhall we think a dumb man irrational, becauſe he cannot ſpeak?

4. I cannot conceive how it is poſsible, that the ſoul is a ſelf-moving number, and yet but a Monad, or Unite; for a Unite, they ſay, is no number, but a principle of number: Not, how the Soul, being incorporeal, can walk in the air, like a body; for incorporeal beings cannot have corporeal actions, no more then corporeal beings can have the actions of incorporeals. Wherefore I will leave thoſe points to the examination of more Learned Perſons, then my ſelf; and as for the *Pythagorean* Tranſmigration of Souls, I have declared my opinion thereof heretofore, in the firſt part.

4. *Of* Epicurus *his Principles of Philoſophy.*

1. CONcerning the World, *Epicurus* is of opinion, That it is not Eternal and Incorruptible; but that it was generated, and had a beginning, and ſhall alſo have an end, and periſh: For, ſays he, *It is neceſſary that all compounded things be alſo diſſipated, and reſolved into thoſe things of which they were compounded.* By the World, he underſtands a portion of the univerſe; that is, the circumference of Heaven, containing the Stars, the Earth, and all things viſible; For Heaven he ſuppoſes to be the extreme, or outmoſt

part

part of the World; and by the Univerſe, he underſtands Infinite Nature, which conſiſts of Body, and *Vacuum*; for he thinks bodies could not move, were there no *Vacuum* to move in.

Whereof I do briefly declare my opinion, thus: If the Univerſe or Nature it ſelf be Infinite, Eternal and Incorruptible, all parts of Nature, or the Univerſe, muſt be ſo too; I mean, in themſelves, as they are Matter, or Body; for were it poſsible, that ſome of them could periſh, or be annihilated; the Univerſe would be imperfect, and conſequently not infinite, as wanting ſome parts of its own body. 'Tis true, particular natural figures may be infinitely changed, diſſolved, transformed; but they can never be diſſolved from being Matter, or parts of Nature; and if not, they cannot periſh, no not the figures of finite parts; for as Matter cannot periſh, ſo neither can figure, becauſe matter and figure are but one thing; and though one part be transformed into millions of figures, yet all thoſe figures do not periſh in their changes and alterations, but continue ſtill in Nature, as being parts of Nature, and therefore material. Thus, change, alteration, diſſolution, diviſion, compoſition, and all other ſpecies of motions, are no annihilation, or periſhing; neither can it be proved, that parts diſſolve more then they unite; becauſe diſſolution, or diviſion and compoſition of parts, are but one act; for whenſoever parts ſeparate themſelves from ſome, they

muſt of neceſsity join to others; which doth alſo prove, that there can be no *Vacuum* in Nature; for if there were, there would be diviſion without compoſition: beſides, there would be no parts, but all parts would be ſeveral wholes, by reaſon they would ſubſiſt by themſelves. Thus Nature would not be one infinite body, compoſed of Infinite parts; but every part being a whole by it ſelf, would make ſome kind of a finite world; and thoſe parts which ſeparate themſelves from each other by the intervals of *Vacuum*, would ſubſiſt preciſed from each other, as having no relation to one another, and ſo become wholes of parts; nay, if ſeveral of thoſe intire and ſingle bodies ſhould join cloſely together, they would make ſuch a gap of *Vacuum*, as would cauſe a confuſion and diſturbance both amongſt themſelves, and in the Univerſe. Wherefore ſenſe and reaſon contradicts the opinion of *Vacuum*; neither is there any neceſsity of introducing it, by reaſon of the motion of natural bodies; for they may move without *Vacuum* better then within *Vacuum*, ſince all bodies are not of the like Nature, that is, denſe, cloſe, or compact; but there are fluid bodies, as well as hard bodies; rare, as well as denſe; ſubtile, as well as groſs; becauſe there is animate and inanimate matter in Nature. But concerning the World, it ſeems, *Epicurus* doth not mean by the diſſolution of the world, an abſolute annihilation, but onely a reduction into its former principles, which are Atomes; however, if this be his meaning, he

he contradicts himſelf, when he affirms, that the Univerſe, whoſe portion the World is, was ever ſuch as it is now, and ſhall ever be thus; for if it ſhall continue ſo for ever as it is now, how is it poſsible, that it ſhould be reduced into Atomes. He ſays alſo, *That the Univerſe is immovable and immutable.* If he mean it to be ſo in its Eſſence or Nature, ſo that it cannot be changed from being material; and that it is immovable, ſo that it cannot be moved, beyond, or without it ſelf; I am of his opinion: For Nature being purely and wholly material, cannot be made immaterial, without its total deſtruction; and being infinite, has nothing without it ſelf to move into: Otherwiſe, Nature is not onely a ſelf-moving body, but alſo full of changes and varieties; I mean, within her ſelf, and her particulars. As for his infinite Worlds, I am not different from his opinion, if by Worlds he mean the parts of infinite Nature; but my Reaſon will not allow, that thoſe infinite Worlds do ſubſiſt by themſelves, diſtinguiſhed from each other by *Vacuum*; for it is meer *non*-ſenſe to ſay, the Univerſe conſiſts of body and *Vacuum*; that is, of ſomething, and nothing; for nothing cannot be a conſtitutive principle of any thing, neither can it be meaſured, or have corporeal dimenſions; for what is no body, can have no bodily affections or properties. God, by his Omnipotency, may reduce the World into nothing; but this cannot be comprehended by natural reaſon.

2. The

2. The Matter or Principle of all natural Beings, *Epicurus* makes Atomes: For, ſays he, *There are Simple, and Compounded bodies in the Univerſe; the Simple bodies are the firſt matter, out of which the Compounded bodies conſiſt, and thoſe are Atomes; that is, bodies indiviſible, immutable, and in themſelves void of all mutation; conſiſting of ſeveral infinite figures; ſome bigger, and ſome leſs.* Which opinion appears very Paradoxical to my reaſon; for if Atomes be bodies, I do not ſee how they can be indiviſible, by reaſon whereſoever is body, there are alſo parts; ſo that diviſibility is an eſſential propriety or attribute of Matter or Body. He counts it impoſsible, that one finite part ſhould be capable of infinite diviſions; but his *Vacuum* makes him believe there are ſingle finite parts, diſtinguiſhed from each other by little ſpaces or intervals of vacuity, which in truth cannot be; but as ſoon as parts are divided from ſuch or ſuch parts, they immediately join to other parts; for diviſion and compoſition, as I mentioned before, are done by one act; and one countervails the other. 'Tis true, there are diſtinctions of parts in Nature, or elſe there would be no variety; but theſe are not made by little intervals of vacuity, but by their own figures, interior as well as exterior, cauſed by ſelf-motion, which make a difference between the infinite parts of Nature. But put the caſe there were ſuch Atomes, out of which all things are made; yet no man that has his ſenſe and reaſon regular,

regular, can believe, they did move by chance, or at leaſt without ſenſe and reaſon, in the framing of the world, and all natural bodies, if he do but conſider the wonderful order and harmony that is in Nature, and all her parts. Indeed I admire ſo witty and great a Philoſopher as *Epicurus*, ſhould be of ſuch an extravagant opinion, as to divide compoſed bodies into animate and inanimate, and derive them all from one Principle, which are ſenſeleſs and irrational Atomes; for if his Atomes, out of which all things conſiſt, be ſelf-moving, or have, as he ſays, ſome natural impulſe within themſelves, then certainly all bodies that are compoſed of them, muſt be the ſame. He places the diverſity of them onely in figure, weight and magnitude, but not in motion, which he equally allows to all; nay, moreover, he ſays, that although they be of different fiſiures, weight and magnitude, yet they do all move equally ſwift; but if they have motion, they muſt of neceſsity have alſo ſenſe, that is, life and knowledg; there being no ſuch thing as a motion by chance in Nature, becauſe Nature is full of reaſon as well as of ſenſe, and whereſoevever is reaſon, there can be no chance; Chance is onely in reſpect to particulars, cauſed by their ignorance; for particulars being finite in themſelves, can have no Infinite or Univerſal knowledg; and where there is no Univerſal knowledg, there muſt of neceſsity be ſome ignorance. Thus ignorance, which proceeds from the diviſion of parts, cauſes that which we

call chance; but Nature, being an infinite ſelf-moving body, has alſo infinite knowledg; and therefore ſhe knows of no chance, nor is this viſible World, or any part of her, made by chance, or a caſual concourſe of ſenſeleſs and irrational Atomes; but by the All-powerful Decree and Command of God, out of that pre-exiſtent Matter that was from all Eternity, which is infinite Nature; for though the Scripture expreſſes the framing of this World, yet it doth not ſay, that Nature her ſelf was then created; but onely that this world was put into ſuch a frame and ſtate, as it is now; and who knows but there may have been many other Worlds before, and of another figure then this is: nay, if Nature be infinite, there muſt alſo be infinite Worlds; for I take, with *Epicurus*, this World but for a part of the Univerſe; and as there is ſelf-motion in Nature, ſo there are alſo perpetual changes of particulars, although God himſelf be immovable; for God acts by his All-powerful Decree or Command, and not after a natural way.

3. The Soul of Animals, ſays *Epicurus*, is corporeal, and a moſt tenuious and ſubtile body, made up of moſt ſubtile particles, in figure, ſmooth and round, not perceptible by any ſenſe; and this ſubtile contexture of the ſoul, is mixed and compounded of four ſeveral natures; as of ſomething fiery, ſomething aerial, ſomething flatuous, and ſomething that has no name; by means whereof it is indued with a ſenſitive faculty. And as

as for reaſon, that is likewiſe compounded of little bodies, but the ſmootheſt and roundeſt of all, and of the quickeſt motion. Thus he diſcourſes of the Soul, which, I confeſs, ſurpaſſes my underſtanding; for I ſhall never be able to conceive, how ſenſeleſs and irrational Atomes can produce ſenſe and reaſon, or a ſenſible and rational body, ſuch as the ſoul is, although he affirms it to be poſsible: 'Tis true, different effects may proceed from one cauſe or principle; but there is no principle, which is ſenſeleſs, can produce ſenſitive effects; nor no rational effects can flow from an irrational cauſe; neither can order, method and harmony proceed from chance or confuſion; and I cannot conceive, how Atomes, moving by chance, ſhould onely make ſouls in animals, and not in other bodies; for if they move by chance, and not by knowledg and conſent, they might, by their conjunction, as well chance to make ſouls in Vegetables and Minerals, as in Animals.

4. Concerning Perception, and in particular, the Perception of ſight, *Epicurus* affirms, that it is performed by the gliding of ſome images of external objects into our eyes, to wit, that there are certain effluxions of Atomes ſent out from the ſurfaces of bodies, preſerving the ſame poſition and order, as is found in the ſuperficies of them, reſembling them in all their lineaments; and thoſe he calls Images, which are perpetually flowing in an interrupted courſe; and when one

one Image goes away, another immediately ſucceeds from the ſuperficies of the object in a continued ſtream; and this entering into our eyes, and ſtriking our ſight, with a very ſwift motion, cauſes the Perception of ſeeing.

This ſtrange opinion of his, is no leſs to be admired then the reſt, and ſhews, that *Epicurus* was more blind in his reaſon, then perhaps in his Eye-ſight: For, firſt, How can there be ſuch a perpetual effluxion of Atomes, from an external body, without leſſening or weakning its bulk or ſubſtance, eſpecially they being corporeal? Indeed, if a million of eyes or more, ſhould look for a long time upon one object, it is impoſsible, but that object would be ſenſibly leſſened or diminiſhed, at leaſt weakned, by the perpetual effluxions of ſo many millions of Atomes: Next, how is it poſsible, that the Eye can receive ſuch an impreſs of ſo many Atomes, without hurting or offending it in the leaſt? Thirdly, Since *Epicurus* makes Vacuities in Nature, How can the images paſs ſo orderly through all thoſe Vacuities, eſpecially if the object be of a conſiderable magnitude? for then all intermediate bodies that are between the ſentient, and the ſenſible object, muſt remove, and make room for ſo many images to paſs thorow. Fourthly, How is it poſsible, that, eſpecially at a great diſtance, in an inſtant of time, and as ſoon as I caſt my eye upon the object, ſo many Atomes can effluviate with ſuch a ſwiftneſs, as to enter

ſo

ſo ſuddenly through the Air into the Eye; for all motion is progreſsive, and done in time? Fifthly, I would fain know, when thoſe Atomes are iſſued from the object, and entered into the eye, what doth at laſt become of them? Surely they cannot remain in the Eye, or elſe the Eye would never loſe the ſight of the object; and if they do not remain in the Eye, they muſt either return to the object from whence they came, or join with other bodies, or be annihilated. Sixtly, I cannot imagine, but that, when we ſee ſeveral objects at one and the ſame time, thoſe images proceeding from ſo many ſeveral objects, be they never ſo orderly in their motions, will make a horrid confuſion; ſo that the eye will rather be confounded, then perceive any thing exactly after this manner. Laſtly, A man having two eyes; I deſire to know, Whether every eye has its own image to perceive, or whether but one image enters into both; if every eye receives its own image, then a man having two eyes, may ſee double; and a great Drone-flie, which Experimental Philoſophers report to have 14000 eyes, may receive ſo many images of one object; but if but one image enters into all thoſe eyes, then the image muſt be divided into ſo many parts.

5. What *Epicurus* means by his divine Nature, cannot be underſtood by a natural capacity; for, he ſays it is the ſame with corporeal Nature; but yet not ſo much a body, as a certain thing like a body, as

having nothing common to it with other bodies, that is, with tranſitory, generated, and periſhable things. But, in my opinion, God muſt either be Corporeal, or Incorporeal; if Corporeal, he muſt be Nature it ſelf; for there's nothing corporeal, but what is natural; if incorporeal, he muſt be ſupernatural; for there is nothing between body, and no body; corporeal and incorporeal; natural, and ſupernatural; and therefore to ſay, God is of a corporeal nature, and yet not a body, but like a body, is contrary to all ſenſe and reaſon. 'Tis true, God hath actions, but they are not corporeal, but ſupernatural, and not comprehenſible by a humane or finite capacity: Neither is God naturally moving, for he has no local or natural motion, nor doth he trouble himſelf with making any thing, but by his All-powerfull Decree and Command he produces all things; and Nature, which is his Eternal ſervant, obeys his Commands: Wherefore the actions of Nature cannot be a diſturbance to his Incomprehenſible felicity, no not to Nature, which being ſelf-moving, can do no otherwiſe, but take delight in acting, for her actions are free and eaſie, and not forced or conſtrained.

6. Although he affirms, That God, or Nature, conſiders Man no more then other Creatures; yet he endeavours to prove, That Man is the beſt product of his Atomes; which to me ſeems ſtrange, conſidering that all compoſitions of Atomes come by chance, and that the Principles of all Creatures are alike. But truly,

truly, take away the ſupernatural or divine ſoul from man, and he is no better then other Creatures are, becauſe they are all compoſed of the ſame matter, and have all ſenſe and reaſon, which produces all ſorts of figures, in ſuch order, method and harmony, as the wiſdom of Nature requires, or as God has ordered it; for Nature, although ſhe be Infinite and Eternal, yet ſhe depends upon the Incomprehenſible God, the Author of Nature, and his All-powerfull Commands, Worſhipping and Adoring him in her infinite particulars; for God being Infinite, muſt alſo have an infinite Worſhip; and if Nature had no dependance on God, ſhe would not be a ſervant, but God her ſelf. Wherefore *Epicurus* his Atomes, having no dependance upon a divine power, muſt of neceſsity be Gods; nay, every Atome muſt be a peculiar God, each being a ſingle body, ſubſiſting by it ſelf; but they being ſenſeleſs and irrational, would prove but weak Gods: Beſides his Chance is but an uncertain God, and his *Vacuum* an empty God; and if all natural effects were grounded upon ſuch principles, Nature would rather be a confuſed Chaos, then an orderly and harmonical Univerſe.

5. *On* Ariſtotle's *Philoſophical Principles.*

HAving viewed four of the moſt Eminent of the Ancient Philoſophers, I will proceed now to *Ariſtotle*, who may juſtly be called the Idol of the Schools, for his doctrine is generally embraced with ſuch reverence, as if Truth it ſelf had declared it; but I find he is no leſs exempt from errors, then all the reſt, though more happy in fame. For Fame doth all, and whoſe name ſhe is pleaſed to record, that man ſhall live, when others, though of no leſs worth and merit, will be obſcured, and buried in oblivion. I ſhall not give my ſelf the trouble of examining all his Principles; but as I have done by the former, make my obſervations on ſome few points in his Philoſophy.

1. The ſumme of his Doctrine concerning Motion, and the firſt Mover, is comprehended in theſe few Theorems. 1. *There are three ſorts of motion, Accretion and Diminution, Alteration and Local motion.* 2. *Reſt is a privation of Motion.* 3. *All Motion is finite, for it is done in Time, which is finite.* 4. *There is no infinite Quantity or Magnitude in act, but onely in power, and ſo no body can be actually infinite.* 5. *Whatſoever is moved, muſt neceſſarily be moved by another.* 6. *There is a firſt mover in Nature, which is the cauſe and origine of all motions.* 7. *This firſt mover is Infinite, Eternal, Indiviſible,*

Indiviſible and Incorporeal. 8. *Motion it ſelf is Eternal, becauſe Time, the meaſure of* Motion, *is Eternal.*

Concerning the firſt, I anſwer, That Nature and all her parts are perpetually ſelf-moving; and therefore it is needleſs to make three ſorts of motions: we might ſay rather, there are infinite ſorts of Motions; but yet all is ſelf-motion, and ſo is accretion, diminution, and alteration; for though our ſenſes cannot perceive the motions of all bodies, how, and which way they move, yet it doth not follow from thence, that they are not moving; for ſolid compoſed bodies, ſuch as Minerals, may (though not to our humane ſenſe) be more active then ſome rarer and thinner bodies, as is evident in the Loadſtone and Iron, and the Needle; nay, in ſeveral other bodies applied by Art Phyſically: for if Nature be ſelf-moving, as ſurely ſhe is, then her parts muſt neceſſarily be in a continual action, there being no ſuch thing as reſt or quieſcence in Nature. Next, *Ariſtotle* ſeems to contradict himſelf, when he ſays, that all Motion is finite, becauſe it is done in Time, and yet affirms, that both Motion and Time are Eternal; for Eternal is that which hath neither beginning, nor end; and if Motion and Time be thus, how can they be finite? 3. I deny, that whatſoever is body or quantitative, cannot be infinite in act, but is onely infinite in power; for if it be probable, that there can be an Eternal motion, and Eternal

time, which is infinite in act; why ſhould it not alſo be probable, that there is an infinite quantity? For motion is the action of body, and it is abſurd, in my opinion, to make body finite, and the action infinite. Truly, if *Ariſtotle* means the World to be finite, and yet eternal, I do not conceive how they can conſiſt together; for if the World be finite in quantity, he muſt allow an infinite *Vacuum* beyond it; which if he doth, why may not he allow as well an infinite quantity? But he has no more ground to deny there is a quantity actually infinite, then he has ground to affirm that it is onely infinite in power; for if that which is in power, may be deduced into act, I ſee no reaſon, but the World, which is Nature, may be ſaid infinite in act, as well as in power. 4. I deny alſo his Theoreme, That whatſoever is moved, muſt neceſſarily be moved by another; for whereſoever is ſelf-motion, there needs no exterior movent; but Nature and all her parts have ſelf-motion, therefore they ſtand in no need of an exterior Movent. 'Tis true, one part may occaſion another by its outward impulſe or force, to move thus or thus; but no part can move by any others motion, but its own, which is an internal, and innate motion; ſo that every part and particle of Nature has the principle of motion within it ſelf, as conſiſting all of a compoſition of animate or ſelf-moving Matter; and if this be ſo, what need we to trouble our ſelves about a firſt Mover? In Infinite and Eternity there is neither

neither firſt nor laſt, and therefore *Ariſtotle* cannot underſtand a firſt mover of Time; and as for motion it ſelf, if all parts move of themſelves, as I ſaid before, there is no neceſsity of an exterior or firſt Mover. But I would fain know what he means by the action of the firſt Mover, whether he be actually moving the world, or not? if he be actually moving, he muſt of neceſsity have natural motion in himſelf; but natural ſelf-motion is corporeal; and a corporeal propriety cannot be attributed to an incorporeal ſubſtance; But if he be not actually moving, he muſt move Nature by his powerful Decree and Command; and thus the firſt mover is none elſe but God, who may be called ſo, becauſe he has endued Nature with ſelf-motion, and given it a principle of motion within it ſelf, to move according as he has decreed and ordered it from all Eternity; for God, being immovable and incorporeal, cannot actually move the Univerſe, like the chief wheel in a Watch. And as for his incorporeal Intelligences, which are Eternal and immovable, preſident over the motions of the inferior orbs, Forty ſeven in number; this is rather a Poetical Fancy, then a probability of truth, and deſerves to be baniſhed out of the ſphere of Natural Philoſophy, which inquires into nothing but what is conformable to the truth of nature; and though we are all but gueſſers, yet he that brings the moſt probable and rational arguments, does come nearer to truth, then thoſe whoſe

whoſe Ground is onely Fancy without Reaſon.

2. Heaven, ſays *Ariſtotle*, is void of Generation and Corruption, and conſequently of accretion, diminution and alteration; for there are no contraries in it, nor has it Levity, or Gravity; neither are there more Worlds but one, and that is finite; for if there were more, the Earth of one would move to the Earth of the other, as being of one kind. To which I anſwer: firſt, As for Generation, Diſſolution, Accretion, Diminution and Alteration of Celeſtial bodies; it is more then a humane Creature is able to know; for although we do not ſee the alterations of them, yet we cannot deny they have natural motion, but whereſoever is motion, there's alſo change and alteration. For, put the caſe the Moon were ſuch another body as this terreſtrial Globe we inhabit, we can onely perceive its outward progreſſive motion; nevertheleſs it may contain as many different particulars, as this Globe of the Earth, which may have their particular motions, and be generated, diſſolved, compoſed, divided and transformed many, nay, infinite ways: The ſame may be ſaid of the reſt of the Planets, and the fixed Stars. And as for Gravity, and Levity, we do onely perceive they are qualities of thoſe parts that belong to this terreſtrial Globe; but we cannot judg of all bodies alike: we ſee air has neither gravity nor levity; for it neither aſcends, nor deſcends; nay, this terreſtrial Globe it ſelf, has neither gravity nor levity,

levity, for it is ſurrounded by the fluid air, and neither aſcends nor deſcends: The truth is, there's no ſuch thing as high and low, in Nature; but onely in reference to ſome parts; and therefore gravity and levity are not Univerſal, and neceſſary attributes of all natural bodies. Next, concerning the multiplicity of Worlds, that there can be no ſuch thing, but that the Earth of one, would move towards the Earth of the other: I anſwer firſt, There's no neceſsity that all Worlds muſt have a Terreſtrial Globe; for Nature hath more varieties of Creatures, then Elements, Vegetables, Minerals, and Animals. Next, if it were ſo, yet I ſee no reaſon that one Creature muſt neceſſarily move to another of the ſame kind: For, put the caſe, as I ſaid before, the Moon was ſuch another terreſtrial Globe as this, yet we ſee they do not move one to another, but each remains in its own Sphere or Circle.

3. I admire, *Ariſtotle* makes the Principles of Nature, Matter, Form and Privation, and leaves out the chief, which is Motion; for were there no motion, there would be no variety of figures; beſides, Matter and Form are but one thing, for whereſoever is Matter, there is alſo form or figure; but privation is a *non*-being, and therefore cannot be a principle of natural bodies.

4. There is no ſuch thing as ſimple bodies in Nature; for if Nature her ſelf conſiſts of a commixture

of animate and inanimate Matter, no part can be called ſimple, as having a compoſition of the ſame parts: beſides, no part can ſubſiſt ſingle, or by it ſelf; wherefore the diſtinction into ſimple and mixt bodies is needleſs; for Elements are as much compoſed bodies, as other parts of Nature; neither do I underſtand the difference between perfect and imperfect mixt bodies, for Nature may compoſe, mix and divide parts as ſhe pleaſeth.

5. The primary Qualities of the Elements, as Heat, and Cold, Humidity and Siccity, ſays *Ariſtotle*, are the cauſe of Generation, when heat and cold overcome the Matter. I wonder he makes qualities to be no ſubſtances, or bodies, but accidents; which is ſomething between body, and no body, and yet places them above Matter, and makes Generation their effect; But whatſoever he calls them, they are no more but effects of Nature, and cannot be above their cauſe, which is Matter; neither is it probable, there are but eighteen paſsive qualities; he might have ſaid, as well, there are but eighteen ſorts of motions; for natural effects go beyond all number, as being infinite.

6. Concerning the Soul, *Ariſtotle* doth not believe, *That it moves by it ſelf, but is onely moved accidentally, according to the Motion of the body*; but he doth not expreſs from whence the motion of the Soul proceeds, although he defines it to be *that, by which we live, feel and underſtand*: *Neither*, ſays he, *is there a Soul diffuſed*

diffuſed through the World, for there are inanimate bodies as well as animate; but ſenſe and reaſon perceives the contrary, to wit, that there is no part of Nature but is animate; that is, has a ſoul. *Senſe*, ſays he, *is not ſenſible of it ſelf, nor of its organ, nor of any interior thing; for ſenſe cannot move it ſelf, but is a mutation in the organ, cauſed by ſome ſenſible object*: But the abſurdity of this opinion I have declared heretofore; for it is contrary to humane Reaſon to believe, firſt, that ſenſe ſhould be ſenſible of an outward object, and not of it ſelf, or (which is all one) have perception of exterior parts, and not ſelf-knowledg. Next, that an external object ſhould be the cauſe of ſenſe, when as ſenſe and reaſon are the chief principles of Nature, and the cauſe of all natural effects. Again, *Senſe*, ſays he, *is in all Animals, but Fancy is not, for Fancy is not Senſe; Fancy acts in him that ſleeps, Senſe not.* To which I anſwer, firſt, Fancy or Imagination is a voluntary action of Reaſon, or of the rational parts of Matter, and if reaſon be in all Animals, nay, in all Creatures, Fancy is there alſo; Next, it is evident that Senſe acts as much aſleep as awake, the difference I have expreſſed elſewhere, *viz.* That the ſenſitive motions, Work inwardly in ſleep, and outwardly awake. *The Intellect* to Ariſtotle, *is that part of the Soul by which it knows and underſtands, and is onely proper to man, when as ſenſe is proper to animals: It is twofold, Patient and Agent, whereof this is Immortal, Eternal, not mixt with the body, but ſepa-*

rable

rable from it, and ever in action: The Patient Intellect, is mortal, and yet void of corruptive paſſion, not mixt with the body, nor having any corporeal organs. But theſe, and many other differences of Intellects, which he rehearſes, are more troubleſome to the underſtanding, then beneficial for the knowledg of Nature: And why ſhould we puzzle our ſelves with multiplicity of terms and diſtinctions when there's no need of them: Truly Nature's actions are eaſie, and we may eaſily apprehend them without much ado. If Nature be material, as it cannot be proved otherwiſe, ſenſe and reaſon are material alſo, and therefore we need not to introduce an incorporeal mind, or intellect: Beſides; if ſenſe and reaſon be a conſtitutive principle of Nature, all parts of Nature do partake of the ſame; nor hath man a prerogative before other Creatures in that caſe, onely the difference and variety of motions makes different figures, and conſequently different knowledges and perceptions; and all Fancies, Imaginations, Judgment, Memory, Remembrance, and the like, are nothing elſe but the actions of reaſon, or of the rational parts of Animate Matter; ſo that there is no neceſsity to make a Patient and Agent Intellect, much leſs to introduce incorporeal ſubſtances, to confound and diſturb corporeal Nature.

6. Of Scepticiſme, and ſome other Sects of the Ancient.

THere are ſeveral ſorts of Scepticks different from each other; for though almoſt every one of the ancient Philoſophers has his own opinions in Natural Philoſophy, and goes on his own grounds or principles, yet ſome come nearer each other, then others do; and though *Heraclitus*, *Democritus*, *Protagoras*, and others, ſeem to differ from the Scepticks, yet their opinions are not ſo far aſunder, but they may all be referred to the ſame ſect.

Heraclitus is of opinion, That contraries are in the ſame thing; and Scepticks affirm, That contraries appear in the ſame thing; but I believe they may be partly both in the right, and partly both in the wrong. If their opinion be, that there are, or appear contraries in Nature, or in the eſſence of Matter, they are both in the wrong; but if they believe that Matter has different and contrary actions, they are both in the right; for there are not onely real, but alſo apparent, or ſeeming contraries in Nature, which are her irregularities; to wit, when the ſenſitive and rational parts of Matter do not move exactly to the nature of their particulars: As for example, Honey is ſweet to thoſe that are ſound, and in health; but bitter to thoſe that have the over-flowing of the Gall: where it is to be obſerved,

that Honey is not changed from its natural propriety, but the motions of the Gall being irregular, make a falſe copy, like as mad men who think their fleſh is ſtone; or thoſe that apprehend a Bird for a Stone, a Man for a Tree, *&c.* neither the Fleſh, nor Stone, nor Tree are changed from their own particular natures; but the motions of humane ſenſe in the ſentient, are irregular, and make falſe copies of true objects; which is the reaſon that an object ſeems often to be that, which really it is not. However, thoſe irregularities are true corporeal motions; and thus there are both real and ſeeming contraries in Nature; but as I mentioned before, they are not contrary matters, but onely contrary actions.

Democritus ſays, That Honey is neither bitter, nor ſweet, by reaſon of its different appearance to differently affected perſons; but if ſo, then he is like thoſe that make neutral beings, which are between body, and no body, which is a Paradox to regular reaſon.

The *Cyrenaick* Sect affirms, That all bodies are of an incomprehenſible nature; but I am not of their opinion: for although the interior, corporeal figurative motions are not ſubject to every Creatures perception, yet in Nature they are not incomprehenſible: As for example, the five ſenſes in man are both knowing and ignorant, not onely of each others perception, but of the ſeveral parts of exterior objects; for the Eye onely perceives the exterior figure, magnitude and colour, and not the Noſe; the Noſe perceives its ſcent, but not

not its colour and magnitude; the Ear perceives neither its magnitude, colour, nor ſcent, but onely its ſound, and ſo forth. The like may be ſaid of the infinite perceptive parts of Nature, whereby they are both obſcured and diſcovered to particulars, and ſo may be truly known in general, but not in particular by any finite Creature, or part of Nature.

The *Academicks* ſay, That ſome Fancies are credible, others incredible; and of thoſe that are credible, ſome are credible onely, and ſome credible, and circumcurrent: As for example, A Rope lying looſely in a dark room, a man receives a credible fancy from it, and runs away; another conſidering it more exactly, and weighing the circumſtances, as that it moves not, that it is of ſuch a colour, and the like, to him it appears a rope, according to the credible and circumcurrent fancy. To which I anſwer: A miſtake is an irregularity of ſenſe, and ſometimes of reaſon too; if ſenſe be onely miſtaken, and not reaſon, reaſon rectifies ſenſe; and if reaſon be onely miſtaken, and not ſenſe, then ſenſe rectifies reaſon; but when both ſenſe and reaſon are miſtaken, the irregularity doth either laſt longer, or changes into regularity by the information of ſome other circumſtances, and things which may rectifie ſometimes the irregular motions both of ſenſe and reaſon; that is, the ſenſitive and rational motions of other parts may rectifie thoſe irregularities.

I could make many more Obſervations, not onely upon

upon the aforementioned, but ſeveral others of the ancient Philoſophers; but my deſign is not to refute their opinions, but, as I mentioned in the beginning, to ſhew the difference between theirs, and my own; and by this we may ſee, that irregularities do not onely appear in our preſent age, but have been alſo in times paſt; nay, ever ſince Nature has been, or elſe there would never have been ſuch extravagant opinions concerning the Truth of Nature.

But the chief which I obſerve is, That moſt of the Ancient make a commixture of natural, and ſupernatural; corporeal, and incorporeal beings; and of animate, and inanimate bodies: ſome derive reaſon from fancy; and ſome introduce neutral beings, which are neither corporeal, nor incorporeal, but between both; eſpecially they do make general principles of particular effects, and abſtract Quality, Motion, Accidents, Figure, Place, Magnitude, *&c.* from Matter, which cauſes ſo many confuſions and differences in their opinions; nor can it be otherwiſe, becauſe of the irregularities and diviſions of Natures corporeal actions; and moſt of our Moderns do either follow altogether the opinions of the ancient Philoſophers, putting them onely into a new dreſs, or patch them up with ſome of their own, and ſo make a Gallimafry in Natural Philoſophy.

AN EXPLANATION OF *Some obſcure and doubtful paſſages occurring in the Philoſophical Works, hitherto publiſhed* BY THE AUTHORESSE.

AS I have made a beginning in my Philoſophical Letters * to clear ſome doubtful paſſages which I marked in my Philoſophical Opinions; ſo I thought it neceſſary to ſecond them with theſe following Notes, and to add not onely what was forgot in the ſame Book, but to explain alſo ſome other paſſages which hitherto I obſerved in the mentioned Book of Letters. For though I know that it is but in vain to hinder all objections, yet I'le endeavour, as much as lies in me, to prevent ſuch as might be occaſioned by the obſcurity of my Writings. No Creature can be ſo perfect as not to commit Errors ſometimes; and ſo may I in my Philoſophical Works, where the cauſes of natural effects are not obvious to every ones ſenſe: Wherefore, if in ſome things, which yet are but few, I have altered my Conceptions from thoſe I maintained heretofore, none, I hope, will condemn me for it, but rather account me ſo great a friend to Truth, that inſtead

* Sect. 4. Let. 33. p. 529.

of being wedded to my own opinions, as ſome or moſt Philoſophers are, who think it a great diſgrace to go but a hairs breadth from the leaſt tittle of what they have once aſſerted, though the Error be as plain as Noon-day: I am moſt willing to deſert what hitherto I have maintained upon more rational and probable arguments then mine, and ſhall joyfully embrace whatever I am in reaſon convinced to come nearer to Truth. But finding, as yet, my opinions grounded upon ſenſe and reaſon, I am reſolved to maintain them ſo long, till the contrary be proved; and therefore leſt their obſcurity occaſion a wrong interpretation in the mind of the Reader, I have (as mentioned) added an explanation of theſe following Paſſages.

Whenſoever, in my Philoſophical Opinions, I ſay *Animate Matter and Motion*, or the *motions of Animate Matter*; I do not take them to be two different things, but one and the ſame; and therefore, both in my Philoſophical Letters, and theſe preſent Obſervations, inſtead of that expreſſion, I ſay *Corporeal figurative Motion*; for *Self-motion*, and *Animate Matter*, are one and the ſame thing.

* Phil. Opin. part. 1. c. 24.

Alſo, when I call * the Animate part of Matter the *Cauſe of Motion*; I do not mean that conſidered in general, they are two diſtinct things, as a Cauſe and Effect uſes to be; for, as I ſaid before, *Self-moving Matter*, and *Corporeal Self-motion*, are equivalent, and ſignifie the ſame; but I ſpeak of particular motions, which

which are particular actions of Infinite ſelf-moving Matter, which I call effects; and are nothing elſe but infinite parts of an Infinite whole.

Again: when I name *Animate and Inanimate Matter*, my meaning is not, that they are two diſtinct matters or ſubſtances, as two wholes; but two degrees or parts of one onely Matter whoſe Nature is one and the ſame, that is, to be material.

When I ſay*, that every part or degree of onely Matter is Infinite, I do not mean the particular effects, parts or figures of ſelf-moving Matter; for it is impoſſible that a part or particular figure can be infinite, as I have often declared: But I ſpeak of the three prime degrees of Matter, which are the conſtitutive principles of Nature, and the cauſe of all natural effects, *viz.* the animate (ſenſitive and rational) and the inanimate; which as they are intermixt together, are infinite in the body or ſubſtance of Nature, that is, they make but one infinite, corporeal, ſelf-moving Nature; and therefore I deſire that my expreſſion of the mentioned parts, may be underſtood as of united, and not as of ſeparated parts; for it is impoſſible almoſt, to conceive them divided, much leſs to ſeparate them actually from each other: and ſince Nature is one infinite body, that is, of an infinite bulk or extenſion, and conſiſts of animate and inanimate parts of Matter; it muſt of neceſſity follow, that theſe mentioned parts are infinite alſo; for there is no particle of Nature whatever, nay,

* Part. 1. c. 3.

nay, could it be an Atome, that conſiſts not of thoſe mentioned parts or degrees. Thus whereſoever I name Infinite degrees of Infinite Matter *, I call them Infinite, not as divided, or ſeveral, but as united in one body; producing infinite effects; for, as I ſaid, they make but one Infinite body of Nature.

* Part. 1. c. 4, 9, 11.

Alſo when in my Philoſophical Letters *, I ſay, that the Animate part of Matter, conſidered in it ſelf, could not produce Infinite effects without the Inanimate, having nothing to work upon, and withal; ſome perhaps will think I contradict my ſelf, becauſe in other places, I have declared, that the rational part of animate Matter works or makes figures in its own degree, without the help either of the ſenſitive or inanimate; beſides, it being matter, or material, why ſhould it not be able to produce effects in it ſelf, as well as with other parts? To which I anſwer, my opinion is, that the animate part of Matter, by which I include the ſenſitive as well as the rational, could not without the inanimate part of Matter, produce ſuch infinite variety of effects as Nature has, and as are partly ſubject to our perception; for without it there would be no groſſer ſubſtance for the ſenſitive to work on, nor nothing for the rational to direct: beſides, there would be no ſuch degrees of Matter as thicker and thinner, rarer and denſer, *&c.* nor no variety of figures; nay, were there no inanimate part of Matttr as well as animate, all productions, diſſolutions, and what actions ſoever would

* Sect. 4 Let. 33. p. 530.

would be done in an inſtant of time, and a man, or any other natural Creature would be produced as ſoon as a thought of the mind; wherefore to poiſe or ballance the actions of Nature, there muſt of neceſſity be an inanimate, dull, or paſſive degree of Matter, as well as there is an animate, active and ſelf-moving; and this triumvirate of the conſtitutive degrees of material nature is ſo neceſſary, that Nature could not be what ſhe is, nor work ſuch variety of figures, as ſhe doth, without it

When I ſay *, that Matter cannot know it ſelf, becauſe it is infinite; I do no not mean as if it had not ſelf-knowledg; for as Matter is ſelf-moving, ſo it is alſo ſelf-knowing; nay, that the Inanimate part of Matter has alſo ſelf-knowledg, I have ſufficiently declared heretofore; but my meaning is, that its knowledg cannot be limited or circumſcribed; and that it is an infinite natural ſelf-knowledg.

* Part. 1. c. 13.

Alſo when in the ſame place I ſay, That Nature hath no free-will, and that no change or alteration can be made in infinite and eternal Matter; I mean concerning its own nature; for Matter cannot go beyond its nature, that is, change from being Matter to ſomething immaterial, or from a natural being, to a non-being; nevertheleſs, Nature in her particular actions works and changes her effects as ſhe pleaſes, and according to the wiſdom and liberty God hath given her,

When I ſay, that the ſenſitive animate part of Matter is the life of the rational ſoul; I do not mean, as if the rational part was not living as well as the ſenſitive; but I ſpeak comparatively, in compariſon to man; who as he has humane life, ſoul and body, all three conſtituting or compoſing, but one intire man; ſo in the compoſition of Nature, I name the Inanimate part the Body, the Senſitive, the Life, and the Rational, the Soul of Nature; nevertheleſs all parts have life and knowledg; for the inanimate, although it is not ſelf-moving, and has not an active life and a perceptive knowledg, yet has it life and knowledg according to the nature of its degree, that is, an innate and fixt ſelf-life and ſelf-knowledg; and the ſenſitive, although it is not ſo ſubtile, piercing and active a degree of ſelf-moving Matter as the rational, yet has it an active life and knowledg, according to the Nature of its degree; and it is well to be obſerved, that each degree in their various commixtures, do never change their natures; for the ſenſitive doth not acquire a rational life and knowledg, nor the rational a ſenſitive; neither does the inanimate part get an active life and a perceptive knowledg, for all they are ſo cloſely commixt, but each retains the nature of its degree; for as one part cannot be another part, ſo one parts life and knowledg, cannot become another parts life and knowledg; or elſe it would produce a confuſion in Nature and all her actions.

In

In what place ſoever, both in my Philoſophical Opinions and Letters, I ſay, that the inanimate part of Matter has neither life nor ſelf-knowledg; I mean, it has not an active life and a perceptive ſelf-knowledg, ſuch as the animate part of Matter has; for though the inanimate part of Matter is moved, yet it is not ſelf-moving, but it moves by the help of the animate parts of Matter; which by reaſon of their cloſe and inſeparable union and commixture, bear it along in all their actions and operations, and thus its motions or actions are onely paſſive, not active: Nevertheleſs, although it has not ſelf-motion, yet may it have life and ſelf-knowledg, according to its own Nature; for ſelf-knowledg does not depend upon motion, but is a fixt and innate being: In ſhort, all parts or degrees of Matter are living and knowing, but not all are ſelf-moving, but onely the animate.

When I ſay, that all Matter lives in figures and Creatures, and all figures and Creatures lie or live in Matter; I mean, that Infinite Matter moves figuratively, and that all Creatures are compoſed by corporeal figurative motion; for in what places ſoever of my Philoſophical Works, I ſay Figure and Motion, I do not mean they are two ſeveral things diſtinct from body, but I underſtand by it, *corporeal figurative motion, or ſelf-moving figurative Matter,* which is one and the ſame. * Phil. Opin. part. 2. c. 2.

When

* Part. 2. c. 9. When I ſay*, That the Rational part of Matter lives in the Senſitive, and the Senſitive in the Inanimate; I do not mean, that one lies within the other like as ſeveral Boxes are put together, the leſſer in the bigger; but I uſe this expreſſion onely to denote the cloſe conjunction of theſe three degrees, and that they are inſeparably mixt together.

* Part. 1. c. 6. Concerning the Chapter of *Vacuum* in my Philoſophical Opinions * though I was doubtful then which opinion to adhere to, yet I have ſufficiently declared my meaning thereof in the foregoing obſervations, to wit, that there can be no vacuity in Natures body.

Phil. Opin. part 1. c. 9. When I name ſix Principal Motions, *viz.* Attraction, Contraction, Dilation, Digeſtion, Retention, Expulſion; I do not mean that they are the principles of all motions, no more then a circular motion can be ſaid the principle of all natural motions, as I have declared before; for particular motions are but effects of ſelf-moving Matter. But I call them principal, becauſe to our humane ſenſe they ſeem to be ſome chief ſorts of motions, in thoſe natural bodies that are ſubject to our perception; but there may be infinite other ſorts of motions which we know not of; the ſame may be ſaid when I ſpeak of the ground of Infinite compoſitions, which is ſymmetry; and infinite diviſions, which is number; for to ſpeak properly, there's no other ground, but ſelf-moving Matter in Nature

When

When I make a diſtinction * between forced, or Artificial and Natural Motions; as that, for example, the motion of a Watch, or a Clock, is artificial, and not natural; my meaning is not, as if artificial motions were ſomething ſuper, or præter-natural, and had no relation to Nature; but by the word *Natural*, I underſtand the particular nature of ſome certain figure or Creature; and when ſuch a figure has ſome other exterior motions beſides thoſe which are proper to its particular nature, cauſed by Art, I call them artificial, and do diſtinguiſh them from ſuch motions as are proper and natural to it; as for example, mans exterior natural local motions, are going, leaping, dancing, running, *&c.* but not flying; which is a motion to Birds, and winged Creatures: Now if a man ſhould by ſome Art acquire this motion of flying, and imitate ſuch winged Creatures to whom it is natural, then it would be an artificial or forced action to him, and not a natural; alſo the nature of Iron or Steel is not to have an exterior progreſsive local motion, ſuch as animals and other Creatures have, and therefore the motion of the wheels of a Watch is forced, or artificial: Nevertheleſs, I ſay, that all theſe motions, although they be forced or artificial, do not proceed from ſome exterior agent any otherwiſe but occaſionally, and that all motions whatſoever are intrinſecally inherent in the body, or which is in motion; for motion cannot be transferred out of one body into another, but every

* *Phil. Let.* Sect. 1. Let. 5. p. 23.

body moves by its own motion. Thus the intrinſecal principle and cauſe of all particular, both interior and exterior motions or actions, is in the body, which is in motion, even of thoſe we call forced or artificial, and proceeds not from ſome exterior agent, but occaſionally; for every part and particle of Nature is ſelf-moving, as conſiſting of a commixture of animate Matter; and no motion can be imparted without body, by reaſon there's no ſuch thing as an incorporeal motion.

When I ſay, *There is no reſt in Nature*; I mean, that all parts are either moving, or moved; for although the inanimate part of Matter has no ſelf-motion, yet it is moved, and conſequently never at reſt; Nor can we ſay, that things do reſt, or have no motion at all, when they have not exterior progreſſive motion, ſuch as is perceptible by our ſight; for this is but a groſs exterior motion; and a world of Gold may be as active interiouſly, as a world of Air is exteriouſly; that is, the actions of Gold are as alterable, as thoſe of air.

* *Phil. Let.* Sect. 1. l. 12. When, contradicting the opinion of Mr. *Hobbes* concerning voluntary motions, who ſays, *That voluntary motions, as going, ſpeaking, moving our lips, depend upon a precedent thought of whither, which way, and what, &c.* I anſwer, that it implies a contradiction, to call them Voluntary Motions, and yet ſay they depend on our imagination; for if the imagination draws them this or that way, how can they be voluntary? My meaning

meaning is not as if thoſe actions were not ſelf-actions, nor as if there were no voluntary actions at all; for to make a balance between Natures actions, there are voluntary, as well as occaſioned actions, both in ſenſe and reaſon; but becauſe Mr *Hobbs* ſays, that thoſe actions are depending upon Imagination and Fancy, and that Imagination is the firſt internal beginning of them, which ſets them a going, as the prime wheel of a Watch does the reſt: My opinion is, that after this rate they cannot properly be called voluntary, but are rather neceſſitated, at leaſt occaſioned by the Mind or Fancy; for I oppoſe voluntary actions to thoſe that are occaſioned or forced; which voluntary actions are made by the ſelf-moving parts by rote, and of their own accord; but occaſioned actions are made by imitation, although they are all ſelf-actions, that is, move by their own inherent ſelf-motion.

When I ſay, *That Animals by their ſhapes are not tied or bound to any other kind of Creature, either for ſupport or nouriſhment, as Vegetables are, but are looſe and free of themſelves from all others*: My opinion is not, as if the animal figure were a ſingle figure, preciſed from all the reſt of natural parts or figures, or from the body of Nature, and ſtood in no need either of nouriſhment or ſupport, but could ſubſiſt of it ſelf without any reſpect or relation to other Creatures: But I ſpeak comparatively, that in compariſon to Vegetables, or ſuch like Creatures, it is more free in its exterior progreſſive local *Phil. Opin. p. 2. c. 6.*

local motions then they, which as we ſee, being taken out of the ground where they grow, wither and change their interior natural figures; for animals, may by a viſible progreſſive motion remove from ſuch parts to other parts, which Vegetables cannot do: nevertheleſs Animals depend as much upon other parts and Creatures, as others depend on them, both for nouriſhment and reſpiration, *&c.* although they may ſubſiſt without being fixt to ſome certain parts of ground: The truth is, ſome animals can live no more without air, then fiſhes can live without water, or Vegetables without ground; ſo that all parts muſt neceſſarily live with each other, and none can boaſt that it needs not the aſſiſtance of any other part, for they are all parts of one body.

Phil. Opin. part 2. c. 3. When diſcourſing of the growth of an Animal, I ſay, that attractive motions do gather and draw ſubſtance proper to and for that figure; I mean, that ſuch ſorts of corporeal motions attract and invite by ſympathy other parts to help to form that Creature; ſo that every where by ſeveral *ſubſtances*, I mean ſeveral *parts* which are particular ſubſtances; that is, corporeal particular figures; and by ſeveral *places* in the ſame Chapter, I underſtand ſeveral *diſtances* of parts.

When in my Philoſophical Letters I do mention that all Perception is made by Patterning, I mean chiefly the perception of the exterior ſenſitive organs in animals, as ſmelling, hearing, ſeeing, taſting, touching;

touching; whoſe perception, I mean, is made by that ſort of motion which is call'd patterning; for in my Book of Philoſophical Letters, I do onely prove, that all perceptions cannot be made by one ſort of motion; as alſo that perception is not immediately made by the exterior object, but by the perceiving or ſentient parts: Nor do I treat in it of all kinds or ſorts of perceptions belonging to all kinds or ſorts of Creatures in Infinite Nature; for they are too numerous to be known by one particular; How can an Animal tell what perception a Vegetable or Mineral has? We may perceive that the Air, which is an Element, doth pattern out ſound; for it is not done by reverberation, as preſſure and reaction, by reaſon there will be in ſome places, not onely two ſeveral Ecchoes of one ſound, but in ſome three, or four; but ſurely one ſound cannot be in ſeveral diſtant places at one time: Alſo a Looking-glaſs, we ſee, does pattern out the figure of an object; but yet we cannot be certainly affirmed, that either the Glaſs, or the Air, have the ſame perceptions which Animals have; for although their patterns are alike, yet their perceptions may be different: As for example, the picture of a Man may be like its original, but yet who knows what perception it has? for though it repreſents the exterior figure of an Animal, yet it is not of the nature of an Animal; and therefore although a man may perceive his picture, yet he knows not what perception the picture has of him; for

we can but judg by our ſelves of the perceptions of our own kind, that is, of Animal kind; and not of the perceptions of other Creatures; for example, I obſerve, that the perception of my exterior ſenſes is made by an eaſie way of patterning out exterior objects, and ſo conclude of the reſt of my own kind, to wit, that the perception of their exterior ſenſitive organs, is made after the ſame manner or way; nay, I perceive, that alſo ſome perceptions of ſeveral other ſorts of Creatures are made by way of patterning, as in the forementioned examples of the Air and Glaſs, and in Infectious Diſeaſes; where ſeveral Creatures will be infected, by one object; which certainly is not by an immediate propagation on ſo many numerous parts, proceeding from the object, but by imitation of the perceiving parts; but yet I cannot infer from thence, that all perceptions in Nature are made by imitation or patterning; for ſome may, and ſome may not: and although our rational perception, being more ſubtil then the ſenſitive, may perceive ſomewhat more, and judg better of outward objects then the ſenſitive; yet it cannot be infallibly aſſured, that it is onely ſo, and not otherwiſe; for we ſee that ſome animals are produced out of Vegetables, whoſe off-ſpring is not any ways like their producer; which proves, that not all actions of Nature are made by imitation or patterning. In ſhort, our reaſon does obſerve, that all perception in general whatſoever, is made by corporeal figurative ſelf-motion, but

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it cannot perceive the particular figurative motions that make every perception; and though ſome Learned are of opinion, that all perceptions are made by preſſure and reaction, yet it is not probable to ſenſe and reaſon; for this, being but one ſort of action, would not make ſuch variety of perceptions in the infinite parts of Nature, as we may perceive there are.

Whenſoever I ſay, that outward objects work or cauſe ſuch or ſuch effects in the body ſentient; I do not mean, that the object is the onely immediate cauſe of the changes of thoſe parts in the ſentient body; but that it is onely an external or occaſional cauſe, and that the effects in the ſentient proceed from its own inherent natural motions; which upon the perception of the exterior object, cauſe ſuch effects in the ſentient, as are either agreeable to the motions of the object, and that by way of imitation, which is called Sympathy; or diſagreeable, which is call'd Antipathy.

When I ſay, * That the ſeveral ſenſes of Animals, pattern out the ſeveral proprieties of one object; as for example, the Tongue patterns out the taſte; the Noſtrils the ſmell; the Ears the noiſe; the Eyes the exterior figure, ſhape, colour, *&c.* and do prove by this, that they are different things, dividable from each other; and yet in other places, do affirm, that colour, place, figure, quantity or magnitude, *&c.* are one and the ſame with body, and inſeparable from each other, 'tis no contradiction; for to be dividable from ſuch

* *Phil. Opin.* part 3. c. 19.

ſuch or ſuch parts, and to be dividable from Matter, are ſeveral things: Smell and Taſte, although they be material or corporeal, and cannot be divided from Matter, yet there is no neceſſity that all parts of Nature muſt be ſubject to ſmell, or taſte, or that ſuch parts muſt have ſuch ſmells, and ſuch taſtes; for though Colour, Place, Taſte, Smell, *&c.* are material, and cannot be without body; yet may they be conceived by our ſenſe and reaſon to be different and ſeveral figures, parts or actions; for as there is no ſuch thing as ſingle parts, or ſingle diviſions in Nature, but all compoſitions, diviſions, changes and alterations, are within the body of Nature; and yet there is ſuch a variety and difference of natural figures and actions, that one figure is not another, nor one action another; ſo it is likewiſe with the mentioned proprieties, or what you'l call them; which, although they cannot be ſeparated from body or matter, yet they may be altered, changed, compoſed and divided with their parts ſeveral ways, and be perceived as various and different actions of Nature, as they are; for as one body may have ſeveral different motions at one and the ſame time; ſo it may alſo have ſeveral proprieties, though not dividable from Matter (for all that is in Nature, is material; nor can there be any ſuch thing as Immaterial accidents, qualities, properties, and the like) yet diſcernable by their different actions, and changeable by the ſelf-moving power of Nature.

But miſtake me not, when I ſay they are ſeveral different figures, parts or actions; for my meaning is not, as if body and they were different things ſeparable from each other; or as if Colour, Place, Figure, Magnitude, *&c.* were ſeveral parts of matter; for then it would follow, that ſome parts could be without place, ſome without figure, ſome without colour, *&c.* which is impoſſible; for could there be a ſingle Atome, yet that Atome would have Colour, Place, Figure, Magnitude, *&c.* onely there would be no motion for want of Parts, and conſequently no Perception: But my meaning is, That the ſeveral properties of a Body, as for example, Taſt, Touch, Smell, Sound, being perceived by the ſeveral ſenſes of Animals, to wit, the Taſt by the Tongue, the Smell by the Noſe, and Colour and Figure by the Eye, *&c.* it proves that they are ſeveral corporeal actions; for the Taſt is not the Smell, nor Smell the Sound, nor Sound the Colour: Nevertheleſs they are all proprieties of the ſame body, and no more dividable from body, then motion is from body, or body from matter; onely they are made according to the ſeveral compoſitions and diviſions of parts: And as for Colour, Place, Magnitude, Figure, *&c.* as I ſaid before, could there be an Atome, it would have Colour, Place, Figure; and though parts be changed millions of ways, yet they cannot loſe Colour, Place and Fi-

gure. The truth is, as there are no ſingle finite parts in Nature, ſo there can neither be ſingle actions, or ſingle perceptions; but as the parts or actions of Nature move in one body, and not ſingly, ſeveral infinite ways, ſo the ſelf-active parts in one compoſed figure, make perceptions of thoſe ſeveral compoſitions in exterior objects.

But ſince my Opinion is, that the Perception of the exterior animal ſenſes is made by that ſort of motion which is call'd Imitation or Patterning, as for example, that the perception of Seeing is made by the ſenſitive, corporeal, figurative motions in the Organ of ſight, (which is the Eye) by their patterning out the figure of an exterior object; ſome perhaps will queſtion, how it be poſſible that an eye, as alſo a glaſs, which is a more ſolid and denſe body than an eye, ſhould pattern out ſo many different figures of exterior objects, and yet keep their own figures perfect?

To which I anſwer, firſt, That not all the corporeal motions of an Object, are perceptible by animal ſenſe, which is too groſs a ſort of perception to perceive them all; for can we ſay that Air, Light, Earth, *&c.* have no other motions but what we perceive? We obſerve in a Sun-dial, that the light removes, but we cannot ſee how it removes; and therefore our eye cannot perceive all the motions or actions of an object. Next I ſay, as for the patterns

of

of the ſenſitive motions, the framing of them is no hinderance to thoſe motions that preſerve the organ in its being; for there are many numerous and different ſorts of motions in one compoſed figure, and yet none is obſtructive to the other, but each knows its own work, and they act all unanimouſly to the conſervation of the whole figure; alſo when ſome actions change, it is not neceſſary that they muſt all change at the ſame time; for if it were ſo, there would be no difference between the actions of Nature, nor no difference of figures.

Again, it may be objected, That if we can perceive the figure of an object, then we muſt of neceſſity perceive the ſubſtance alſo; figure and body being but one thing; for example, if we can perceive the figure of a thought, we muſt alſo perceive that degree of matter which is named Rational; the ſame may be ſaid of the other degrees of matter, the Senſitive and Inanimate.

I anſwer, That although the Figures are perceived; yet the degree of matter cannot be perceived, at leaſt not in all objects, nor by all our ſenſitive organs; for though the eye perceives light, yet it does not perceive what light is made of, neither does the Ear perceive it, but onely the Eye; alſo the Ear perceives ſound, yet the Eye does not; nor does the Ear know or perceive the proper and immediate motions and parts that make the ſound. Again, al-

though

though the Eye, or rather the ſenſitive motions that make the perception of ſight, perceive the light of fire, yet they do not perceive the heat thereof, which is onely ſubject to Touch; the ſame may be ſaid of Smell and Taſt; ſo that not all the parts are ſubject to one ſenſe; and if this be onely in one ſort of Creatures, what difference of perception may there be in the infinite parts of Nature? The truth is, our humane perception is ſtinted, ſo that we cannot perceive all objects, but thoſe that are within the compaſs of being perceived by our ſenſes; nay it is without queſtion, but that there are more perceptions in man than theſe Five, becauſe there are Numerous different perceptive parts, which have all their peculiar perceptions which we do not know of, what they are, nor how they are made. But, as I ſaid before, although the figure may be perceived, yet the ſubſtance may not; and yet this does not prove that figure and body are not one thing; for though ſuch a figure is not bound to ſuch parts, yet parts cannot be figureleſs, no more then figure can be bodileſs; and the change of figures is not an annihilation or a total ſeparation of figure from body; a mans face may change from being red, to pale, and from pale to red, and yet the ſubſtance of his face may remain the ſame; the like may be ſaid of the figures in our Eyes, or of the figures made by a Looking-glaſs, of exterior objects, they may change, and yet

yet the Eye remain perfect; and although the ſubtileſt corporeal motions cannot be perceived by us ſo perfectly as the groſſer actions of Nature, yet we cannot but know by our rational perception, that there are ſuch ſubtile actions which are no wayes ſubject to our exterior, ſenſitive perception: For though all actions of Nature are perceptive, yet none can be more agil and active then the rational; and next to them, none more but the ſenſitive action of imitation and patterning; for as we may perceive, the actions of production, diſſolution, growth, decay, *&c.* are far more ſlower then the actions of patterning or copying out of exterior objects, by reaſon thoſe ſorts of actions are groſs, but theſe are ſubtil, purer and finer, and therefore quicker and agiler.

But ſome may ask, Whether in the ſenſitive action of imitating or patterning out the figures of forreign objects, there be inanimate matter mixt with it?

I anſwer, Yes; for 'tis impoſſible that one ſhould either be, or work without the other, by reaſon it is the propriety of the ſenſitive corporeal motions to work upon, and with the inanimate parts, and the chief difference that is between the rational and ſenſitive parts; for the rational can act within their own degree of matter, but the ſenſitive are always incumbred with labouring on the inanimate, and cannot

work ſo as the rational do.

But then they'l ſay, If the ſenſitive parts be ſo incumbred with the inanimate, how is it poſſible that they can make ſuch quick perceptions as we obſerve they do?

I anſwer; There are many kinds and ſorts of Perceptions, whereof ſome are ſlower, and ſome quicker then others, according to the ſeveral degrees of groſsneſs and purity of the inanimate parts; ſo that we have no reaſon to wonder at the variety of perceptions, and how ſome come to be quicker, and ſome ſlower; for ſome parts of inanimate matter may be ſo pure and fine, that, were they ſubject to our perception, we ſhould take them to be parts of the Animate degree.

Laſtly; Some might ſay, That although the ſenſitive degree of matter be not the ſame with the inanimate, yet they being ſo cloſely intermixt, as I have deſcribed, may by a voluntary agreement, alter the parts of Nature as they pleaſe, as, from a Vegetable into a Mineral; from a Mineral into an Animal, *&c.* and that either of their own accord, or by imitation.

I anſwer; It may be poſſible in Nature, but yet it is not probable that they do ſo, by reaſon all the ſelf-moving parts do not in all compoſed figures work agreeably, or alike; but their actions are for the moſt part poiſed by Oppoſites, not onely in infinite Na-

Nature, but alſo in all compoſed figures, eſpecially thoſe that conſiſt of different parts: Beſides, the rational parts of matter being the ſurveighing, ordering and deſigning parts, do not ſuffer them in ſuch actions to work as they pleaſe, but order them all according to the Wiſdom of Nature; and though ſometimes it may happen that they work or move irregularly, yet that is not perpetual in all actions, but ſometimes; for whereſoever is croſſing and oppoſition, there muſt of neceſſity be ſometimes irregularities and diſorders.

When in my Philoſophical Letters, I ſay, That there is difference between Life and Knowledg; by Life I underſtand *Senſe*, or the ſenſitive parts of matter; and by Knowledg *Reaſon*, or the Rational parts of Matter; not as if the ſenſitive parts had not Knowledg as well as the rational, or the rational Life as well as the ſenſitive; but I ſpeak comparatively, in the ſame ſenſe as I name the ſenſitive part the *Life*, the rational the *Soul*, and the inanimate the *Body* of Nature. Sect. 1. Let. 10, 12.

And thus much for the preſent.

There may be many more the like places in my Philoſophical Works, eſpecially my Philoſophical and Phyſical Opinions, which may ſeem dubious and obſcure; but I will not trouble you now with a long Commentary or Explanation of them; but if God grant me life, I intend to rectifie that mentioned

ed Book of Philoſophical Opinions, in the beſt manner I can; becauſe it contains the Ground of my Philoſophy, in which I hope there will be no labour loſt, but it will facilitate the Underſtanding of the Reader, and render my Conceptions eaſie and intelligible, which is the onely thing I am at, and labour for.

THE DESCRIPTION OF A NEW WORLD, CALLED The Blazing World.

WRITTEN

By the Thrice Noble, Illuſtrious, and Excellent

PRINCESSE,

THE

Ducheſs of Newcaſtle.

LONDON,

Printed by *A. Maxwell*, in the Year, 1666.

TO THE

DUCHESSE OF NEWCASTLE,

ON HER

New Blazing World.

OUr Elder World, with all their Skill and Arts,
Could but divide the *World* into three Parts:
Columbus then for Navigation fam'd,
Found a new World, *America* 'tis nam'd:
Now this new World was found, it was not made,
Onely diſcovered, lying in Times ſhade.
Then what are *You*, having no *Chaos* found
To make a *World*, or any ſuch leaſt ground?
But your creating Fancy, thought it fit
To make your World of Nothing, but pure Wit.
Your *Blazing-world*, beyond the Stars mounts higher,
Enlightens all with a Cœleſtial Fier.

William Newcaſtle.

TO THE

READER.



IF you wonder, that I join a work of Fancy to my ſerious Philoſophical Contemplations; think not that it is out of a diſparagement to Philoſophy; or out of an opinion, as if this noble ſtudy were but a Fiction of the Mind; for though Philoſophers may err in ſearching and enquiring after the Cauſes of Natural Effects, and many times embrace falſhoods for Truths; yet this doth not prove, that the Ground of Philoſophy is meerly Fiction, but the error proceeds from the different motions of Reaſon, which cauſe different Opinions in different parts, and in ſome are more irregular then in others; for Reaſon being dividable, becauſe material, cannot move in all parts alike; and ſince there is but one Truth in Nature, all thoſe that hit not this Truth, do err, ſome more, ſome leſs; for though ſome may come nearer the mark then others, which makes their Opinions ſeem more probable and rational then others; yet as long as they ſwerve from this onely Truth, they are in

the wrong: Nevertheleſs, all do ground their Opinions upon Reaſon; that is, upon rational probabilities, at leaſt, they think they do: But Fictions *are an iſſue of mans Fancy, framed in his own Mind, according as he pleaſes, without regard, whether the thing, he fancies, be really exiſtent without his mind or not; ſo that Reaſon ſearches the depth of Nature, and enquires after the true Cauſes of Natural Effects; but Fancy creates of its own accord whatſoever it pleaſes, and delights in its own work. The end of Reaſon, is Truth; the end of Fancy, is Fiction: But miſtake me not, when I diſtinguiſh* Fancy *from* Reaſon; *I mean not as if Fancy were not made by the Rational parts of Matter; but by* Reaſon *I underſtand a rational ſearch and enquiry into the cauſes of natural effects; and by* Fancy *a voluntary creation or production of the Mind, both being effects, or rather actions of the rational part of Matter; of which, as that is a more profitable and uſeful ſtudy then this, ſo it is alſo more laborious and difficult, and requires ſometimes the help of Fancy, to recreate the Mind, and withdraw it from its more ſerious Contemplations.*

And this is the reaſon, why I added this Piece of Fancy to my Philoſophical Obſervations, and joined them as two Worlds at the ends of their Poles; both for my own ſake, to divert my ſtudious thoughts, which I employed in the Contemplation thereof, and to delight the Reader *with variety, which is always pleaſing. But leſt my Fancy ſhould ſtray too much, I choſe ſuch a Fiction as would be*

agreeable

agreeable to the ſubject I treated of in the former parts; it is a Deſcription of a New World, not ſuch as Lucian's, or the French-man's World in the Moon; but a World of my own Creating, which I call the Blazing-World: The firſt part whereof is Romancical, the ſecond Philoſophical, and the third is meerly Fancy, or (as I may call it) Fantaſtical; which if it add any ſatisfaction to you, I ſhall account my ſelf a Happy Creatoreſs; if not, I muſt be content to live a melancholly Life in my own World; I cannot call it a poor World, if poverty be onely want of Gold, Silver, and Jewels; for there is more Gold in it then all the Chymiſts ever did, and (as I verily believe) will ever be able to make. As for the Rocks of Diamonds, I wiſh with all my ſoul they might be ſhared amongſt my noble female friends, and upon that condition, I would willingly quit my part; and of the Gold I ſhould onely deſire ſo much as might ſuffice to repair my Noble Lord and Husband's Loſſes: For I am not Covetous, but as Ambitious as ever any of my Sex was, is, or can be; which makes, that though I cannot be Henry the Fifth, or Charles the Second, yet I endeavour to be Margaret the Firſt; and although I have neither power, time nor occaſion to conquer the world as Alexander and Cæſar did; yet rather then not to be Miſtreſs of one, ſince Fortune and the Fates would give me none, I have made a World of my own: for which no body, I hope, will blame me, ſince it is in every ones power to do the like.

THE

THE DESCRIPTION OF A NEW WORLD, CALLED The Blazing World.

A Merchant travelling into a forreign Country, fell extreamly in Love with a young Lady; but being a ſtranger in that Nation, and beneath her both in Birth and Wealth, he could have but little hopes of obtaining his deſire; however his love growing more and more vehement upon him, even to the ſlighting of all difficulties, he reſolved at laſt to ſteal her away; which he had the better opportunity to do, becauſe her Fathers houſe was not far from the Sea,

and ſhe often uſing to gather ſhells upon the ſhore, accompanied not with above two or three of her ſervants, it encouraged him the more to execute his deſign. Thus coming one time with a little light Veſſel, not unlike a Packet-boat, mann'd with ſome few Sea-men, and well victualled, for fear of ſome accidents, which might perhaps retard their journey, to the place where ſhe uſed to repair, he forced her away: But when he fancied himſelf the happieſt man of the World, he proved to be the moſt unfortunate; for Heaven frowning at his theft, raiſed ſuch a Tempeſt, as they knew not what to do, or whither to ſteer their courſe; ſo that the Veſſel, both by its own lightneſs, and the violent motion of the Wind, was carried as ſwift as an Arrow out of a Bow, towards the North-pole, and in a ſhort time reached the Icy Sea, where the wind forced it amongſt huge pieces of Ice; but being little, and light, it did by aſsiſtance and favour of the Gods to this virtuous Lady, ſo turn and wind through thoſe precipices, as if it had been guided by ſome Experienced Pilot, and skilful Mariner: But alas! thoſe few men which were in it, not knowing whither they went, nor what was to be done in ſo ſtrange an adventure, and not being provided for ſo cold a Voyage, were all frozen to death, the young Lady onely, by the light of her Beauty, the heat of her Youth, and Protection of the Gods, remaining alive: Neither was it a wonder that the men did freeze to death; for they were not onely

driven

driven to the very end or point of the Pole of that World, but even to another Pole of another World, which joined cloſe to it; ſo that the cold having a double ſtrength at the conjunction of thoſe two Poles, was inſupportable: At laſt, the Boat ſtill paſsing on, was forced into another World; for it is impoſsible to round this Worlds Globe from Pole to Pole, ſo as we do from Eaſt to Weſt; becauſe the Poles of the other World, joining to the Poles of this, do not allow any further paſſage to ſurround the World that way; but if any one arrives to either of theſe Poles, he is either forced to return, or to enter into another World; and leaſt you ſhould ſcruple at it, and think, if it were thus, thoſe that live at the Poles would either ſee two Suns at one time, or elſe they would never want the Suns light for ſix months together, as it is commonly believed; You muſt know, that each of theſe Worlds having its own Sun to enlighten it, they move each one in their peculiar circles; which motion is ſo juſt and exact, that neither can hinder or obſtruct the other; for they do not exceed their Tropicks, and although they ſhould meet, yet we in this world cannot ſo well perceive them, by reaſon of the brightneſs of our Sun, which being nearer to us, obſtructs the ſplendor of the Suns of the other Worlds, they being too far off to be diſcerned by our optick perception, except we uſe very good Teleſcopes, by which skilful Aſtronomers have often obſerved two or three Suns at once.

But

But to return to the wandering Boat, and the diſtreſed Lady, ſhe ſeeing all the Men dead, found ſmall comfort in life; their bodies which were preſerved all that while from putrefaction and ſtench, by the extremity of cold, began now to thaw, and corrupt; whereupon ſhe having not ſtrength enough to fling them over-board, was forced to remove out of her ſmall Cabine, upon the deck, to avoid that nauſeous ſmell; and finding the Boat ſwim between two plains of Ice, as a ſtream that runs betwixt two ſhores, at laſt perceived land, but covered all with ſnow: from which came walking upon the Ice ſtrange Creatures, in ſhape like Bears, onely they went upright as men; thoſe Creatures coming near the Boat, catched hold of it with their Paws, that ſerved them inſtead of hands; ſome two or three of them entred firſt; and when they came out, the reſt went in one after another; at laſt having viewed and obſerved all that was in the Boat, they ſpake to each other in a language which the Lady did not underſtand, and having carried her out of the Boat, ſunk it, together with the dead men.

The Lady now finding her ſelf in ſo ſtrange a place, and amongſt ſuch a wonderful kind of Creatures, was extreamly ſtrucken with fear, and could entertain no other Thoughts, but that every moment her life was to be a ſacrifice to their cruelty; but thoſe Bear-like Creatures, how terrible ſoever they appear'd to her ſight, yet were they ſo far from exerciſing any cruelty upon

upon her, that rather they ſhewed her all civility and kindneſs imaginable; for ſhe being not able to go upon the ice, by reaſon of its ſlipperineſs, they took her up in their rough armes, and carried her into their City, where inſtead of houſes, they had Caves under ground; and as ſoon as they enter'd the City, both Males and Females, young and old, flockt together to ſee this Lady, holding up their paws in admiration; at laſt having brought her into a certain large and ſpacious Cave, which they intended for her reception, they left her to the cuſtody of the Females, who entertained her with all kindneſs and reſpect, and gave her ſuch victuals as they were uſed to eat; but ſeeing her conſtitution neither agreed with the temper of that Climate, nor their Diet, they were reſolved to carry her into another Iſland of a warmer temper; in which were men like Foxes, onely walking in an upright ſhape, who received their neighbours the Bear-men with great civility and courtſhip, very much admiring this beauteous Lady, and having diſcourſed ſome while together, agreed at laſt to make her a preſent to the Emperour of their world; to which end, after ſhe had made ſome ſhort ſtay in the ſame place, they brought her croſs that Iſland to a large River, whoſe ſtream run ſmooth and clear, like Chryſtal; in which were numerous Boats, much like our Fox-traps; in one whereof ſhe was carried, ſome of the Bear- and Fox-men waiting on her; and as ſoon as they had

croſſed the River, they came into an Iſland where there were Men which had heads, beaks, and feathers, like Wild-geeſe, onely they went in an upright ſhape, like the Bear-men and Fox-men; their rumps they carried between their legs, their wings were of the ſame length with their bodies, and their tails of an indifferent ſize, trailing after them like a Ladies Garment; and after the Bear- and Fox-men had declared their intention and deſign to their neighbours, the Geeſe- or Bird-men, ſome of them joined to the reſt, and attended the Lady through that Iſland, till they came to another great and large River, where there was a preparation made of many Boats, much like Birds neſts, onely of a bigger ſize; and having croſt that River, they arrived into another Iſland, which was of a pleaſant and mild temper, full of Woods, and the inhabitants thereof were *Satyrs*, who received both the Bear- Fox- and Bird-men, with all reſpect and civility; and after ſome conferences (for they all underſtood each others language) ſome chief of the *Satyrs* joining to them, accompanied the Lady out of that Iſland to another River, wherein were very handſome and commodious Barges; and having croſt that River, they entered into a large and ſpacious Kingdom, the men whereof were of a Graſs-green complexion, who entertained them very kindly, and provided all conveniences for their further voyage: hitherto they had onely croſt Rivers, but now they could

could not avoid the open Seas any longer; wherefore they made their Ships and tacklings ready to ſail over into the Iſland, where the Emperor of their Blazing-world (for ſo it was call'd) kept his reſidence; very good Navigators they were; and though they had no knowledg of the Load-ſtone, or Needle, or pendulous Watches, yet (which was as ſerviceable to them) they had ſubtile obſervations, and great practice; in ſo much that they could not onely tell the depth of the Sea in every place, but where there were ſhelves of Sand, Rocks, and other obſtructions to be avoided by skilfull and experienced Sea-men: Beſides, they were excellent Augurers, which skill they counted more neceſſary and beneficial then the uſe of Compaſſes, Cards, Watches, and the like; but above the reſt, they had an extraordinary Art, much to be taken notice of by experimental Philoſophers, and that was a certain Engine, which would draw in a great quanty of air, and ſhoot forth wind with a great force; this Engine in a calm, they placed behind their ſhips, and in a ſtorm, before; for it ſerved againſt the raging waves, like Canons againſt an hoſtile Army, or beſieged Town; it would batter and beat the waves in pieces, were they as high as ſteeples; and as ſoon as a breach was made, they forced their paſſage through, in ſpight even of the moſt furious wind, uſing two of thoſe Engins at every Ship, one before, to beat off the waves, and another behind to drive it on; ſo that the artificial wind had the better

better of the natural; for it had a greater advantage of the waves then the natural of the ſhips; the natural being above the face of the water, could not without a down-right motion enter or preſs into the ſhips; whereas the artificial with a ſideward motion did pierce into the bowels of the waves: Moreover, it is to be obſerved, that in a great tempeſt they would join their ſhips in battle array, and when they feared wind and waves would be too ſtrong for them, if they divided their ſhips, they joined as many together as the compaſs or advantage of the places of the liquid Element would give them leave; for their ſhips were ſo ingeniouſly contrived, that they could faſten them together as cloſe as a honey-comb without waſte of place; and being thus united, no wind nor waves were able to ſeparate them. The Emperors ſhips were all of Gold, but the Merchants and Skippers of Leather; the Golden ſhips were not much heavier then ours of Wood, by reaſon they were neatly made, and required not ſuch thickneſs, neither were they troubled with Pitch, Tar, Pumps, Guns, and the like, which make our Wooden-ſhips very heavy; for though they were not all of a piece, yet they were ſo well ſodder'd, that there was no fear of leaks, chinks, or clefts; and as for Guns, there was no uſe of them, becauſe they had no other enemies but the winds; but the Leather ſhips were not altogether ſo ſure, although much lighter; beſides, they were pitched to keep out water.

Having

Having thus prepared and order'd their Navy, they went on in deſpight of Calm or Storm, and though the Lady at firſt fancied her ſelf in a very ſad condition, and her mind was much tormented with doubts and fears, not knowing whether this ſtrange adventure would tend to her ſafety or deſtruction; yet ſhe being withal of a generous ſpirit, and ready wit, conſidering what dangers ſhe had paſt, and finding thoſe ſorts of men civil and diligent attendants to her, took courage, and endeavoured to learn their language; which after ſhe had obtained ſo far, that partly by ſome words and ſigns ſhe was able to apprehend their meaning, ſhe was ſo far from being afraid of them, that ſhe thought her ſelf not onely ſafe, but very happy in their company: By which we may ſee, that Novelty diſcompoſes the mind, but acquaintance ſettles it in peace and tranquility. At laſt, having paſſed by ſeveral rich Iſlands and Kingdoms, they went towards *Paradiſe*, which was the ſeat of the Emperor; and coming in ſight of it, rejoyced very much; the Lady at firſt could perceive nothing but high Rocks, which ſeemed to touch the Skies; and although they appear'd not of an equal heigth, yet they ſeemed to be all one piece, without partitions; but at laſt drawing nearer, ſhe perceived a cliſt, which was a part of thoſe Rocks, out of which ſhe ſpied coming forth a great number of Boats, which afar off ſhewed like a company of Ants, marching one after another; the Boats appeared like the holes or

partitions in a Honey-comb, and when joined together, ſtood as cloſe; the men were of ſeveral complexions, but none like any of our World; and when both the Boats and Ships met, they ſaluted and ſpake to each other very courteouſly; for there was but one language in all that world, nor no more but one Emperor, to whom they all ſubmitted with the greateſt duty and obedience, which made them live in a continued peace and happineſs, not acquainted with other forreign wars, or home-bred inſurrections. The Lady now being arrived at this place, was carried out of her Ship into one of thoſe Boats, and conveighed through the ſame paſſage (for there was no other) into that part of the world where the Emperor did reſide; which part was very pleaſant, and of a mild temper: within it ſelf it was divided by a great number of vaſt and large Rivers, all ebbing and flowing, into ſeveral Iſlands of unequal diſtance from each other, which in moſt parts were as pleaſant, healthful, rich, and fruitful, as Nature could make them; and, as I mentioned before, ſecure from all forreign invaſions, by reaſon there was but one way to enter, and that like a Labyrinth, ſo winding and turning among the rocks, that no other Veſſels but ſmall Boats, could paſs, carrying not above three paſſengers at a time: On each ſide all along this narrow and winding River, there were ſeveral Cities, ſome of Marble, ſome of Alabaſter, ſome of Agat, ſome of Amber, ſome of Coral, and ſome of other precious

precious materials not known in our world; all which after the Lady had paſſed, ſhe came to the Imperial City, named *Paradiſe*, which appeared in form like ſeveral Iſlands; for Rivers did run betwixt every ſtreet, which together with the Bridges, whereof there was a great number, were all paved; the City it ſelf was built of Gold, and their Architectures were noble, ſtately, and magnificent, not like our Modern, but like thoſe in the *Romans* time; for our Modern Buildings are like thoſe houſes which Children uſe to make of Cards, one ſtory above another, fitter for Birds, then Men; but theirs were more large, and broad, then high; the higheſt of them did not exceed two ſtories, beſides thoſe rooms that were under-ground, as Cellars, and other offices. The Emperors Palace ſtood upon an indifferent aſcent from the Imperial City; at the top of which aſcent was a broad Arch, ſupported by ſeveral Pillars, which went round the Palace, and contained four of our Engliſh miles in compaſs: ~~upon the top of~~ within the Arch ſtood the Emperors Guard, which conſiſted of ſeveral ſorts of men; at every half mile was a Gate to enter, and every Gate was of a different faſhion; the firſt, which allowed a paſſage from the Imperial City into the Palace, had on either hand a Cloyſter, the outward part whereof ſtood upon Arches ſuſtained by Pillars, but the inner part was cloſe: Being entred through the Gate, the Palace it ſelf appear'd in its middle like the Iſle of a Church, a mile and

a half long, and half a mile broad; the roof of it was all arched, and reſted upon Pillars, ſo artificially placed, that a ſtranger would loſe himſelf therein without a Guide; at the extream ſides, that is, between the outward and inward part of the Cloyſter, were Lodgings for Attendants, and in the midſt of the Palace, the Emperors own rooms; whoſe lights were placed at the top of every one, becauſe of the heat of the Sun: the Emperors appartement for State was no more incloſed then the reſt; onely an Imperial Throne was in every appartement, of which the ſeveral adornments could not be perceived until one enter'd, becauſe the Pillars were ſo juſt oppoſite to one another, that all the adornments could not be ſeen at once. The firſt part of the Palace was, as the Imperial City, all of Gold, and when it came to the Emperors appartement, it was ſo rich with Diamonds, Pearls, Rubies, and the like precious ſtones, that it ſurpaſſes my skill to enumerate them all. Amongſt the reſt, the Imperial Room of State appear'd moſt magnificent; it was paved with green Diamonds (for in that World are Diamonds of all colours) ſo artificially, as it ſeemed but of one piece; the Pillars were ſet with Diamonds ſo cloſe, and in ſuch a manner, that they appear'd moſt Glorious to the ſight; between every Pillar was a bow or arch of a certain ſort of Diamonds, the like whereof our World does not afford; which being placed in every one of the arches in ſeveral rows, ſeemed juſt like ſo many Rainbows

bows of ſeveral different colours. The roof of the Arches was of blew Diamonds, and in the midſt thereof was a Carbuncle, which repreſented the Sun; the riſing and ſetting Sun at the Eaſt and Weſt ſide of the room were made of Rubies. Out of this room there was a paſſage into the Emperors Bed-chamber, the walls whereof were of Jet, and the floor of black Marble; the roof was of mother of Pearl, where the Moon and Blazing-ſtars were repreſented by white Diamonds, and his Bed was made of Diamonds and Carbuncles.

No ſooner was the Lady brought before the Emperor, but he conceived her to be ſome Goddeſs, and offered to worſhip her; which ſhe refuſed, telling him, (for by that time ſhe had pretty well learned their language) that although ſhe came out of another world, yet was ſhe but a mortal; at which the Emperor rejoycing, made her his Wife, and gave her an abſolute power to rule and govern all that World as ſhe pleaſed. But her ſubjects, who could hardly be perſwaded to believe her mortal, tender'd her all the veneration and worſhip due to a Deity.

Her accouſtrement after ſhe was made Empreſs, was as followeth: On her head ſhe wore a Cap of Pearl, and a Half-moon of Diamonds juſt before it; on the top of her Crown came ſpreading over a broad Carbuncle, cut in the form of the Sun; her Coat was of Pearl, mixt with blew Diamonds, and fringed

with red ones; her Buskins and Sandals were of green Diamonds: In her left hand ſhe held a Buckler, to ſignifie the Defence of her Dominions; which Buckler was made of that ſort of Diamond as has ſeveral different Colours; and being cut and made in the form of an arch, ſhewed like a Rain-bow; In her right hand ſhe carried a Spear made of a white Diamond, cut like the tail of a Blazing-ſtar, which ſignified that ſhe was ready to aſſault thoſe that proved her Enemies.

None was allowed to uſe or wear Gold but thoſe of the Imperial race, which were the onely Nobles of the State; nor durſt any one wear Jewels but the Emperor, the Empreſs, and their Eldeſt Son; notwithſtanding that they had an infinite quantity both of Gold and precious Stones in that World; for they had larger extents of Gold, then our Arabian Sands; their pretious Stones were Rocks, and their Diamonds of ſeveral Colours; they uſed no coyn, but all their Traffick was by exchange of ſeveral Commodities.

Their Prieſts and Governours were Princes of the Imperial Blood, and made Eunuches for that purpoſe; and as for the ordinary ſort of men in that part of the World where the Emperor reſided, they were of ſeveral Complexions; not white, black, tawny, olive- or aſh-coloured; but ſome appear'd of an Azure, ſome of a deep Purple, ſome of a Graſs-green, ſome of a Scarlet, ſome of an Orange-colour, *&c.* Which Colours and Complexions, whether they were made by the

the bare reflection of light, without the aſsiſtance of ſmall particles,or by the help of well-ranged and order'd Atomes;or by a continual agitation of little Globules; or by ſome preſsing and reacting motion, I am not able to determine. The reſt of the Inhabitants of that World, were men of ſeveral different ſorts, ſhapes, figures, diſpoſitions, and humors, as I have already made mention heretofore; ſome were Bear-men, ſome Worm-men, ſome Fiſh- or Mear-men, otherwiſe called Syrenes; ſome Bird-men, ſome Fly-men, ſome Ant-men, ſome Geeſe-men, ſome Spider-men, ſome Lice-men, ſome Fox-men, ſome Ape-men, ſome Jack-daw-men, ſome Magpie-men, ſome Parrot-men, ſome Satyrs, ſome Gyants, and many more, which I cannot all remember; and of theſe ſeveral ſorts of men, each followed ſuch a profeſsion as was moſt proper for the nature of their ſpecies, which the Empreſs encouraged them in, eſpecially thoſe that had applied themſelves to the ſtudy of ſeveral Arts and Sciences; for they were as ingenious and witty in the invention of profitable and uſeful Arts, as we are in our world, nay, more; and to that end ſhe erected Schools, and founded ſeveral Societies. The Bear-men were to be her Experimental Philoſophers, the Bird-men her Aſtronomers, the Fly-Worm- and Fiſh-men her Natural Philoſophers, the Ape-men her Chymiſts, the Satyrs her Galenick Phyſicians, the Fox-men her Polititians, the Spider- and Lice-men her Mathematicians, the Jackdaw- Magpie-

and

and Parrot-men her Orators and Logicians, the Gyants her Architects, *&c.* But before all things, ſhe having got a ſoveraign power from the Emperor over all the World, deſired to be informed both of the manner of their Religion and Government, and to that end ſhe called the Prieſts and States-men, to give her an account of either. Of the States-men ſhe enquired, firſt, Why they had ſo few Laws? To which they anſwered, That many Laws made many Diviſions, which moſt commonly did breed factions, and at laſt brake out into open wars. Next, ſhe asked, Why they preferred the Monarchical form of Goverment before any other? They anſwered, That as it was natural for one body to have but one head, ſo it was alſo natural for a Politick body to have but one Governor; and that a Common-wealth, which had many Governors was like a Monſter ~~of~~ with many heads: beſides, ſaid they, a Monarchy is a divine form of Government, and agrees moſt with our Religion; for as there is but one God, whom we all unanimouſly worſhip and adore with one Faith, ſo we are reſolved to have but one Emperor, to whom we all ſubmit with one obedience.

Then the Empreſs ſeeing that the ſeveral ſorts of her Subjects had each their Churches apart, asked the Prieſts whether they were of ſeveral Religions? They anſwered her Majeſty, That there was no more but one Religion in all that World, nor no diverſity of opinions

opinions in that ſame Religion; for though there were ſeveral ſorts of men, yet had they all but one opinion concerning the Worſhip and Adoration of God. The Empreſs asked them, Whether they were Jews, Turks, or Chriſtians? We do not know, ſaid they, what Religions thoſe are; but we do all unanimouſly acknowledg, worſhip and adore the Onely, Omnipotent, and Eternal God, with all reverence, ſubmiſsion, and duty. Again, the Empreſs enquired, Whether they had ſeveral Forms of Worſhip? They anſwered, No: For our Devotion and Worſhip conſiſts onely in Prayers, which we frame according to our ſeveral neceſsities, in Petitions, Humiliations, Thankſgiving, *&c*, Truly, replied the Empreſs, I thought you had been either Jews, or Turks, becauſe I never perceived any Women in your Congregations; But what is the reaſon, you bar them from your religious Aſſemblies? It is not fit, ſaid they, that Men and Women ſhould be promiſcuouſly together in time of Religious Worſhip; for their company hinders Devotion, and makes many, inſtead of praying to God, direct their devotion to their Miſtreſſes. But, asked the Empreſs, Have they no Congregation of their own, to perform the duties of Divine Worſhip, as well as Men? No, anſwered they: but they ſtay at home, and ſay their Prayers by themſelves in their Cloſets. Then the Empreſs deſir'd to know the reaſon why the Prieſts and Governors of their World

were made Eunuchs? They anſwer'd, To keep them from Marriage: For Women and Children moſt commonly make diſturbance both in Church and State. But, ſaid ſhe, Women and Children have no employment in Church or State. 'Tis true, anſwer'd they; but although they are not admitted to publick employments, yet are they ſo prevalent with their Huſbands and Parents, that many times by their importunate perſwaſions, they cauſe as much, nay, more miſchief ſecretly, then if they had the management of publick affairs.

The Empreſs having received an information of what concerned both Church and State, paſſed ſome time in viewing the Imperial Palace, where ſhe admired much the skil and ingenuity of the Architects, and enquired of them, firſt, why they built their Houſes no higher then two ſtories from the Ground? They anſwered her Majeſty, That the lower their buildings were, the leſs were they ſubject either to the heat of the Sun, to Wind, Tempeſt, Decay, *&c.* Then ſhe deſired to know the reaſon, why they made them ſo thick? They anſwered, That the thicker the Walls were, the warmer were they in Winter, and cooler in Summer, for their thickneſs kept out both cold and heat. Laſtly, ſhe asked, why they arched their roofs, and made ſo many Pillars? They replied, That Arches and Pillars, did not onely grace a building very much, and cauſed it to appear Magnificent, but made it alſo firm and laſting.

The

The Empreſs was very well ſatisfied with their anſwers; and after ſome time, when ſhe thought that her new founded ſocieties of the Vertuoſo's had made a good progreſs in their ſeveral employments, which ſhe had put them upon, ſhe cauſed a Convocation firſt of the Bird-men, and commanded them to give her a true relation of the two Celeſtial bodies, *viz.* the Sun and Moon, which they did with all the obedience and faithfulneſs befitting their duty.

The Sun, as much as they could obſerve, they related to be a firm or ſolid Stone, of a vaſt bigneſs, of colour yellowiſh, and of an extraordinary ſplendor; but the Moon, they ſaid, was of a whitiſh colour; and although ſhe looked dim in the preſence of the Sun, yet had ſhe her own light, and was a ſhining body of her ſelf, as might be perceived by her vigorous appearance in Moon-ſhiny nights; the difference onely betwixt her own and the Suns light was, that the Sun did ſtrike his beams in a direct line; but the Moon never reſpected the Centre of their World in a right line, but her Centre was always excentrical. The ſpots both in the Sun and Moon, as far as they were able to perceive, they affirmed to be nothing elſe but flaws and ſtains of their ſtony bodies. Concerning the heat of the Sun, they were not of one opinion; ſome would have the Sun hot in it ſelf, alledging an old Tradition, that it ſhould at ſome time break aſunder, and burn the Heavens, and conſume this world into hot

hot embers, which, ſaid they, could not be done, if the Sun were not fiery of it ſelf. Others again ſaid, This opinion could not ſtand with reaſon; for Fire being a deſtroyer of all things, the Sun-ſtone after this manner would burn up all the near adjoining bodies: beſides, ſaid they, Fire cannot ſubſiſt without fuel; and the Sun-ſtone having nothing to feed on, would in a ſhort time conſume it ſelf; wherefore they thought it more probable that the Sun was not actually hot, but onely by the reflection of its light; ſo that its heat was an effect of its light, both being immaterial: But this opinion again was laught at by others, and rejected as ridiculous, who thought it impoſsible that one immaterial ſhould produce another; and believed that both the light and heat of the Sun proceeded from a ſwift Circular motion of the æthereal Globules, which by their ſtriking upon the optick nerve, cauſed light, and their motion produced heat: But neither would this opinion hold; for, ſaid ſome, then it would follow, that the ſight of Animals is the cauſe of light, and that, were there no eyes, there would be no light; which was againſt all ſenſe and reaſon. Thus they argued concerning the heat and light of the Sun; but which is remarkable, none did ſay, that the Sun was a globous fluid body, and had a ſwift circular motion; but all agreed it was fixt and firm like a centre, and therefore they generally called it the Sun-ſtone.

The

Then the Empereſs asked them the reaſon, Why the Sun and Moon did often appear in different poſtures or ſhapes, as ſometimes magnified, ſometimes diminiſhed, ſometimes elevated, otherwhiles depreſſed, now thrown to the right, and then to the left? To which ſome of the Bird-men anſwered, That it proceeded from the various degrees of heat and cold, which are found in the air, from whence did follow a differing denſity and rarity; and likewiſe from the vapours that are interpoſed, whereof thoſe that aſcend are higher and leſs denſe then the ambient air, but thoſe which deſcend are heavier, and more denſe. But others did with more probability affirm, that it was nothing elſe but the various patterns of the Air; for like as Painters do not copy out one and the ſame original juſt alike at all times, ſo, ſaid they, do ſeveral parts of the Air make different patterns of the luminous bodies of the Sun and Moon, which patterns, as ſeveral copies, the ſenſitive motions do figure out in the ſubſtance of our eyes.

This anſwer the Empereſs liked much better then the former, and enquired further, what opinion they had of thoſe Creatures that are called the motes of the Sun? To which they anſwered, That they were nothing elſe but ſtreams of very ſmall, rare and tranſparent particles, through which the Sun was repreſented as through a glaſs; for if they were not tranſparent, ſaid they, they would eclipſe the light of the Sun; and if not rare and of an airy ſubſtance, they would hinder

Flies from flying in the air, at leaſt retard their flying motion: Nevertheleſs, although they were thinner then the thinneſt vapour, yet were they not ſo thin as the body of air, or elſe they would not be perceptible by animal ſight. Then the Empereſs asked, Whether they were living Creatures? They anſwered, Yes: Becauſe they did encreaſe and decreaſe, and were nouriſhed by the preſence, and ſtarved by the abſence of the Sun.

Having thus finiſhed their diſcourſe of the Sun and Moon, the Empereſs deſired to know what Stars there were beſides? But they anſwer'd, that they could perceive in that World none other but Blazing-ſtars, and from thence it had the name that it was called the Blazing-world; and theſe Blazing-ſtars, ſaid they, were ſuch ſolid, firm and ſhining bodies as the Sun and Moon, not of a Globular, but of ſeveral ſorts of figures, ſome had tails, and ſome other kinds of ſhapes.

After this, The Empereſs asked them, What kind of ſubſtance or creature the Air was? The Bird-men anſwered, That they could have no other perception of the air, but by their own reſpiration: For, ſaid they, ſome bodies are onely ſubject to touch, others onely to ſight, and others onely to ſmell; but ſome are ſubject to none of our exterior ſenſes: For Nature is ſo full of variety, that our weak ſenſes cannot perceive all the various ſorts of her Creatures; neither is there any one

object

object perceptible by all our ſenſes, no more then ſeveral objects are by one ſenſe. I believe you, replied the Empreſs; but if you can give no account of the Air, ſaid ſhe, you will hardly be able to inform me how Wind is made; for they ſay that Wind is nothing but motion of the Air. The Bird-men anſwer'd, That they obſerved Wind to be more denſe then Air, and therefore ſubject to the ſenſe of Touch; but what properly Wind was, and the manner how it was made, they could not exactly tell; ſome ſaid, it was cauſed by the Clouds falling on each other, and others, that it was produced of a hot and dry exhalation, which aſcending, was driven down again by the coldneſs of the air that is in the middle Region, and by reaſon of its lightneſs, could not go directly to the bottom, but was carried by the Air up and down: Some would have it a flowing water of the Air; and others again a flowing Air moved by the blas of the Stars.

But the Empereſs ſeeing they could not agree concerning the cauſe of Wind, asked, whether they could tell how Snow was made? To which they anſwered, That according to their obſervation, Snow was made by a commixture of Water, and ſome certain extract of the element of Fire that is under the Moon; a ſmall portion of which extract being mixed with Water, and beaten by Air or Wind, made a white froth called Snow, which being after ſome while diſſolved by the heat of the ſame ſpirit, turned to Water again. This obſervation

obſervation amazed the Empereſs very much; for ſhe had hitherto believed, That Snow was made by cold motions, and not by ſuch an agitation or beating of a fiery extract upon water: Nor could ſhe be perſwaded to believe it until the Fiſh- or Mear-men had delivered their obſervation upon the making of Ice, which, they ſaid, was not produced, as ſome had hitherto conceived, by the motion of the Air, raking the Superficies of the Earth, but by ſome ſtrong ſaline vapour ariſing out of the Seas, which condenſed Water into Ice; and the more quantity there was of that vapour, the greater were the Mountains or Precipices of Ice; but the reaſon that it did not ſo much freeze in the Torrid Zone, or under the Ecliptick, as near or under the Poles, was, that this vapour in thoſe places being drawn up by the Sun-beams into the middle Region of the Air, was onely condenſed into water, and fell down in ſhowres of rain; when as, under the Poles, the heat of the Sun being not ſo vehement, the ſame vapour had no force or power to riſe ſo high, and therefore cauſed ſo much Ice, by aſcending and acting onely upon the ſurface of water.

This Relation confirmed partly the obſervation of the Bird-men concerning the cauſe of Snow; but ſince they had made mention that that ſame extract, which by its commixture with Water made Snow, proceeded from the Element of Fire, that is under the Moon; The Empereſs asked them of what nature that Elementary

tary Fire was; whether it was like ordinary fire here upon Earth, or ſuch a fire as is within the bowels of the Earth, and as the famous mountains *Veſuvius* and *Ætna* do burn withal, or whether it was ſuch a ſort of fire as is found in flints, *&c.* They anſwered, That the Elementary Fire, which is underneath the Sun, was not ſo ſolid as any of thoſe mentioned fires; becauſe it had no ſolid fuel to feed on; but yet it was much like the flame of ordinary fire, onely ſomewhat more thin and fluid; for flame, ſaid they, is nothing elſe but the airy part of a fired body.

Laſtly, the Empereſs asked the Bird-men of the nature of Thunder and Lightning? and whether it was not cauſed by roves of Ice falling upon each other? To which they anſwered, That it was not made that way, but by an encounter of cold and heat; ſo that an exhalation being kindled in the Clouds, did daſh forth Lightning, and that there were ſo many rentings of Clouds as there were ſounds and Cracking noiſes: But this opinion was contradicted by others, who affirmed that Thunder was a ſudden and monſtrous blas, ſtirred up in the Air, and did not always require a Cloud; but the Empereſs not knowing what they meant by blas (for even they themſelves were not able to explain the ſenſe of this word) liked the former better; and to avoid hereafter tedious diſputes, and have the truth of the Phænomena's of Celeſtial bodies more exactly known, commanded the Bear-men;

which were her Experimental Philoſophers, to obſerve them through ſuch Inſtruments as are called Teleſcopes, which they did according to her Majeſties Command; but theſe Teleſcopes cauſed more differences and diviſions amongſt them, then ever they had before; for ſome ſaid, they perceived that the Sun ſtood ſtill, and the Earth did move about it; others were of opinion, that they both did move; and others ſaid again, that the Earth ſtood ſtill, and the Sun did move; ſome counted more Stars then others; ſome diſcovered new Stars never ſeen before; ſome fell into a great diſpute with others concerning the bigneſs of the Stars; ſome ſaid the Moon was another World like their Terreſtrial Globe, and the ſpots therein were Hills and Vallies; but others would have the ſpots to be the Terreſtrial parts, and the ſmooth and gloſsie parts, the Sea: At laſt, the Empereſs commanded them to go with their Teleſcopes to the very end of the Pole that was joined to the world ſhe came from, and try whether they could perceive any Stars in it; which they did; and being returned to her Majeſty, reported that they had ſeen three Blazing-ſtars appear there, one after another in a ſhort time, whereof two were bright, and one dim; but they could not agree neither in this obſervation; for ſome ſaid it was but one Star which appeared at three ſeveral times, in ſeveral places; and others would have them to be three ſeveral Stars; for they thought it impoſsible, that thoſe three ſeveral appearances ſhould have

have been but one Star, becauſe every Star did riſe at a certain time, and appear'd in a certain place, and did diſappear in the ſame place: Next, It is altogether improbable, ſaid they, That one Star ſhould flie from place to place, eſpecially at ſuch a vaſt diſtance, without a viſible motion, in ſo ſhort a time, and appear in ſuch different places, whereof two were quite oppoſite, and the third ſide-ways: Laſtly, If it had been but one Star, ſaid they, it would always have kept the ſame ſplendor, which it did not; for, as above mentioned, two were bright, and one was dim. After they had thus argued, the Empereſs began to grow angry at their Teleſcopes, that they could give no better Intelligence; for, ſaid ſhe, now I do plainly perceive, that your Glaſſes are falſe Informers, and inſtead of diſcovering the Truth, delude your ſenſes; Wherefore I Command you to break them, and let the Bird-men truſt onely to their natural eyes, and examine Celeſtial objects by the motious of their own ſenſe and reaſon. The Bear-men replied, That it was not the fault of their Glaſſes, which cauſed ſuch differences in their opinions, but the ſenſitive motions in their optick organs did not move alike, nor were their rational judgments always regular: To which the Empereſs anſwered, That if their glaſſes were true informers, they would rectifie their irregular ſenſe and reaſon; But, ſaid ſhe, Nature has made your ſenſe and reaſon more regular then Art has your Glaſſes, for they are meer deluders,

and

and will never lead you to the knowledg of Truth; Wherefore I command you again to break them; for you may obſerve the progreſsive motions of Celeſtial bodies with your natural eyes better then through Artificial Glaſſes. The Bear-men being exceedingly troubled at her Majeſties diſpleaſure concerning their Teleſcopes, kneel'd down, and in the humbleſt manner petitioned that they might not be broken; for, ſaid they, we take more delight in Artificial deluſions, then in natural truths. Beſides, we ſhall want imployments for our ſenſes, and ſubjects for arguments; for were there nothing but truth, and no falſhood, there would be no occaſion for to diſpute, and by this means we ſhould want the aim and pleaſure of our endeavours in confuting and contradicting each other; neither would one man be thought wiſer then another, but all would either be alike knowing and wiſe, or all would be fools; wherefore we moſt humbly beſeech your Imperial Majeſty to ſpare our Glaſſes, which are our onely delight, and as dear to us as our lives. The Empereſs at laſt conſented to their requeſt, but upon condition, that their diſputes and quarrels ſhould remain within their Schools, and cauſe no factions or diſturbances in State, or Government. The Bear-men, full of joy, returned their moſt humble thanks to the Empereſs; and to make her amends for the diſpleaſure which their Teleſcopes had occaſioned, told her Majeſty, that they had ſeveral other artificial Optick-glaſſes, which they were

were ſure would give her Majeſty a great deal more ſatisfaction. Amongſt the reſt they brought forth ſeveral Microſcopes, by the means of which they could enlarge the ſhapes of little bodies, and make a Lowſe appear as big as an Elephant, and a Mite as big as a Whale. Firſt of all they ſhewed the Empereſs a gray Drone-flye, wherein they obſerved that the greateſt part of her face, nay, of her head, conſiſted of two large bunches all cover'd over with a multitude of ſmall Pearls or Hemiſpheres in a Trigonal order, which Pearls were of two degrees, ſmaller and bigger; the ſmaller degree was lowermoſt, and looked towards the ground; the other was upward, and looked ſideward, forward and and backward: They were all ſo ſmooth and poliſhed, that they were able to repreſent the image of any object, the number of them was in all 14000. After the view of this ſtrange and miraculous Creature, and their ſeveral obſervations upon it, the Empereſs asked them what they judged thoſe little Hemiſpheres might be? They anſwered, That each of them was a perfect eye, by reaſon they perceived that each was covered with a Tranſparent Cornea, containing a liquor within them, which reſembled the watery or glaſsie humor of the Eye. To which the Empereſs replied, That they might be glaſsie Pearls, and yet not eyes, and that perhaps their Microſcopes did not truly inform them: But they ſmilingly anſwered her Majeſty, That ſhe did not know the vertue of

thoſe Microſcopes; for they did never delude, but rectifie and inform their ſenſes; nay, the World, ſaid they, would be but blind without them, as it has been in former ages before thoſe Microſcopes were invented.

After this, they took a Charcoal, and viewing it with one of their beſt Microſcopes, diſcovered in it an infinite multitude of pores, ſome bigger, ſome leſs; ſo cloſe and thick, that they left but very little ſpace betwixt them to be filled with a ſolid body; and to give her Imperial Majeſty a better aſſurance thereof, they counted in a line of them an inch long, no leſs then 2700 pores; from which obſervation they drew this following concluſion, to wit, that this multitude of pores was the cauſe of the blackneſs of the Coal; for, ſaid they, a body that has ſo many pores, from each of which no light is reflected, muſt neceſſarily look black, ſince black is nothing elſe but a privation of light, or a want of reflection. But the Empereſs replied, That if all colours were made by reflection of light, and that black was as much a colour as any other colour; then certainly they contradicted themſelves in ſaying, that black was made by want of reflection. However, not to interrupt your Microſcopical inſpections, ſaid ſhe, let us ſee how Vegetables appear through your Glaſſes; whereupon they took a Nettle, and by the vertue of the Microſcope, diſcovered that underneath the points of the Nettle there were certain little bags or bladders,

bladders, containing a poyſonous liquor, and when the points had made way into the interior parts of the skin, they like Syringe-pipes ſerved to conveigh that ſame liquor into them. To which obſervation the Empereſs replied, That if there were ſuch poyſon in Nettles, then certainly in eating of them, they would hurt us inwardly, as much as they do outwardly? But they anſwered, That it belonged to Phyſicians more then to Experimental Philoſophers, to give reaſons hereof; for they onely made Microſcopial inſpections, and related the figures of the natural parts of Creatures according to the preſentation of their glaſſes.

Laſtly, They ſhewed the Empereſs a Flea, and a Lowſe; which Creatures through the Microſcope appear'd ſo terrible to her ſight, that they had almoſt put her into a ſwoon; the deſcription of all their parts would be very tedious to relate, and therefore I'le forbear it at this preſent. The Empereſs after the view of thoſe ſtrangely-ſhaped Creatures, pitied much thoſe that are moleſted with them, eſpecially poor Beggars, which although they have nothing to live on themſelves, are yet neceſsitated to maintain and feed of their own fleſh and blood, a company of ſuch terrible Creatures called Lice, who inſtead of thanks, do reward them with pains, and torment them for giving them nouriſhment and food. But after the Empereſs had ſeen the ſhapes of theſe monſtrous Creatures, ſhe deſir'd to know whether their Microſcopes could hinder

hinder their biting, or at leaſt ſhew ſome means how to avoid them? To which they anſwered, That ſuch Arts were mechanical and below that noble ſtudy of Microſcopical obſervations. Then the Empereſs asked them whether they had not ſuch ſorts of Glaſſes that could enlarge and magnifie the ſhapes of great bodies, as well as they had done of little ones? Whereupon they took one of their beſt and largeſt Microſcopes, and endeavoured to view a Whale thorow it; but alas! the ſhape of the Whale was ſo big, that its circumference went beyond the magnifying quality of the Glaſs; whether the error proceeded from the Glaſs, or from a wrong poſition of the Whale againſt the reflection of light, I cannot certainly tell. The Empereſs ſeeing the inſufficiency of thoſe Magnifying-glaſſes, that they were not able to enlarge all ſorts of objects, asked the Bear-men whether they could not make glaſſes of a contrary nature to thoſe they had ſhewed her, to wit, ſuch as inſtead of enlarging or magnifying the ſhape or figure of an object, could contract it beneath its natural proportion: Which, in obedience to her Majeſties Commands, they did; and viewing through one of the beſt of them, a huge and mighty Whale appear'd no bigger then a Sprat; nay, through ſome no bigger then a Vinegar-Eele; and through their ordinary ones, an Elephant ſeemed no bigger then a Flea; a Camel no bigger then a Lowſe; and an Oſtrich no bigger then a Mite. To relate all their optick obſervations

vations through the ſeveral ſorts of their Glaſſes, would be a tedious work, and tire even the moſt patient Reader, wherefore I'le paſs them by; onely this was very remarkable and worthy to be taken notice of, that notwithſtanding their great skil, induſtry and ingenuity in Experimental Philoſophy, they could yet by no means contrive ſuch Glaſſes, by the help of which they could ſpy out a *Vacuum*, with all its dimenſions, nor Immaterial ſubſtances, Non-beings, and Mixt-beings, or ſuch as are between ſomething and nothing; which they were very much troubled at, hoping that yet, in time, by long ſtudy and practice, they might perhaps attain to it.

The Bird- and Bear-men being diſmiſſed, the Empereſs called both the Syrenes, or Fiſh-men, and the Worm-men, to deliver their obſervations which they had made, both within the Seas, and the Earth. Firſt ſhe enquired of the Fiſh-men whence the ſaltneſs of the Sea did proceed? To which they anſwered, That there was a volatile ſalt in thoſe parts of the Earth, which as a boſom contain the Waters of the Sea, which ſalt being imbibed by the Sea, became fixt; and this imbibing motion was that they call'd the Ebbing and Flowing of the Sea; for, ſaid they, the riſing and ſwelling of the water, is cauſed by thoſe parts of the volatile ſalt as are not ſo eaſily imbibed, which ſtriving to aſcend above the water, bear it up with ſuch a motion, as Man, or ſome other animal Creature, in a violent

exerciſe uſes to take breath. This they affirmed to be the true cauſe both of the ſaltneſs, and the ebbing and flowing motion of the Sea, and not the jogging of the Earth, or the ſecret influence of the Moon, as ſome others had made the World believe.

After this, the Empereſs enquired, whether they had obſerved that all animal Creatures within the Seas and other waters, had blood? They anſwered, That ſome had blood, more or leſs, but ſome had none; In Crea-fiſhes and Lobſters, ſaid they, we perceive but little blood; but in Crabs, Oiſters, Cockles, *&c.* none at all. Then the Empereſs asked them in what part of their bodies that little blood did reſide? They anſwered, in a ſmall vein, which in Lobſters went through the middle of their tails, but in Crea-fiſhes was found in their backs: as for other ſorts of Fiſhes, ſome, ſaid they, had onely blood about their gills, and others in ſome other places of their bodies; but they had not as yet obſerved any whoſe veins did ſpread all over their bodies. The Empereſs wondering that there could be living Animals without blood, to be better ſatisfied, deſired the Worm-men to inform her, whether they had obſerved blood in all ſorts of Worms? They anſwered, That as much as they could perceive, ſome had blood, and ſome not; a Moth, ſaid they, had no blood at all, and a Lowſe had but like a Lobſter, a little vein along her back: Alſo Nits, Snails, and Maggots, as well as thoſe that are generated out of Cheeſe

and

and Fruits, as thoſe that are produced out of Fleſh, had no blood. But replied the Empereſs, If thoſe mentioned creatures have no blood, how is it poſsible they can live; for it is commonly ſaid, that the life of an Animal conſiſts in the blood, which is the ſeat of the Animal ſpirits? They anſwered, That blood was not a neceſſary propriety to the life of an animal, and that that which was commonly called animal ſpirits, was nothing elſe but corporeal motions proper to the nature and figure of an animal. Then ſhe asked both the Fiſh- and Worm-men, whether all thoſe Creatures that have blood, had a circulation of blood in their veins and arteries? But they anſwered, That it was impoſsible to give her Majeſty an exact account thereof, by reaſon the circulation of blood was an interior motion, which their ſenſes, neither of themſelves, nor by the help of any optick inſtrument could perceive; but as ſoon as they had diſſected an animal Creature to find out the truth thereof, the interior corporeal motions proper to that particular figure or creature were altered. Then ſaid the Empereſs, if all animal Creatures have not blood, it is certain, they have neither all muſcles, tendons, nerves, *&c.* But, ſaid ſhe, Have you ever obſerved animal Creatures that are neither Fleſh, nor Fiſh, but of an intermediate degree between both. Truly, anſwered both the Fiſh- and Worm-men, We have obſerved ſeveral animal Creatures that live both in water, and on the Earth indifferently, and if any, certainly

certainly thoſe may be ſaid to be of ſuch a mixt nature, that is, partly fleſh, and partly fiſh: But how is it poſsible, replied the Empereſs, that they ſhould live both in Water, and on the Earth, ſince thoſe Animals that live by the reſpiration of air, cannot live within Water, and thoſe that live in Water, cannot live by the reſpiration of Air, as experience doth ſufficiently witneſs. They anſwered her Majeſty, That as there were different ſorts of Creatures, ſo they had alſo different ways of reſpirations; for reſpiration, ſaid they, was nothing elſe but a compoſition and diviſion of parts, and the motions of nature being infinitely various, it was impoſsible that all Creatures ſhould have the like motions; wherefore it was not neceſſary, that all animal Creatures ſhould be bound to live either by the air, or by water onely, but according as Nature had ordered it convenient to their ſpecies. The Empereſs ſeem'd very well ſatisfied with their anſwer, and deſired to be further informed, Whether all animal Creatures did continue their ſpecies by a ſucceſsive propagation of particulars, and whether in every ſpecies the off-ſpring did always reſemble their Generator or Producer, both in their interior and exterior figures? They anſwered her Majeſty, That ſome ſpecies or ſorts of Creatures, were kept up by a ſucceſsive propagation of an off-ſpring that was like the producer, but ſome were not; of the firſt rank, ſaid they, are all thoſe animals that are of different ſexes, beſides ſeveral others; but of the

ſecond

ſecond rank are for the moſt part thoſe we call inſects, whoſe production proceds from ſuch cauſes as have no conformity or likeneſs with their produced effects; as for example, Maggots bred out of Cheeſe, and ſeveral others generated out of Earth, Water, and the like. But ſaid the Empereſs, there is ſome likeneſs between Maggots and Cheeſe, for Cheeſe has no blood, and ſo neither have Maggots; beſides, they have almoſt the ſame taſte which Cheeſe has. This proves nothing, anſwered they; for Maggots have a viſible, local, progreſsive motion, which Cheeſe hath not. The Empereſs replied, That when all the Cheeſe was turned into Maggots, it might be ſaid to have local, progreſsive motion. They anſwered, That when the Cheeſe by its own figurative motions was changed into Maggots, it was no more Cheeſe. The Empereſs confeſſed that ſhe obſerved Nature was infinitely various in her works, and that though the ſpecies of Creatures did continue, yet their particulars were ſubject to infinite changes. But ſince you have informed me, ſaid ſhe, of the various ſorts and productions of animal Creatures, I deſire you to tell me what you have obſerved of their ſenſitive perceptions? Truly, anſwered they, Your Majeſty puts a very hard queſtion to us, and we ſhall hardly be able to give a ſatisfactory anſwer to it; for there are many different ſorts of Creatures, which as they have all different perceptions, ſo they have alſo different organs, which

our ſenſes are not able to diſcover, onely in an Oyſter-ſhell we have with admiration obſerved, that the common *ſenſorium* of the Oyſter lies juſt at the cloſing of the ſhells, where the preſſure and reaction may be perceived by the opening and ſhutting of the ſhells every tide.

After all this, the Empereſs deſired the Worm-men to give her a true Relation how froſt was made upon the Earth? To which they anſwered, That it was made much after the manner and deſcription of the Fiſh- and Bird-men, concerning the Congelation of Water into Ice and Snow, by a commixture of ſaline and acid particles; which relation added a great light to the Ape-men, who were the Chymiſts, concerning their Chymical principles, Salt, Sulphur and Mercury. But, ſaid the Empereſs, if it be ſo, it will require an infinite multitude of ſaline particles to produce ſuch a great quantity of Ice, Froſt and Snow: beſides, ſaid ſhe, when Snow, Ice and Froſt, turn again into their former principle, I would fain know what becomes of thoſe ſaline particles? But neither the Wor-men, nor the Fiſh- and Bird-men, could give her an anſwer to it.

Then the Empereſs enquired of them the reaſon, Why Springs were not as ſalt as the Sea is? alſo, why Springs did ebb and flow? To which ſome anſwered, That the ebbing and flowing of ſome Springs was cauſed by hollow Caverns within the Earth, where the Sea-water crowding thorow, did thruſt forward, and draw back-ward the Spring-water, according to its own way of ebbing

ebbing and flowing; but others ſaid, That it proceeded from a ſmall proportion of ſaline and acid particles, which the Spring-water imbibed from the Earth; and although it was not ſo much as to be perceived by the ſenſe of Taſte, yet was it enough to cauſe an ebbing and flowing motion. And as for the Spring-water being freſh, they gave, according to their obſervation, this following reaſon: There is, ſaid they, a certain heat within the bowels of the Earth, proceeding from its ſwift circular motion upon its own axe, which heat diſtills the rareſt parts of the Earth into a freſh and inſipid water, which water being through the pores of the Earth, conveighed into a place where it may break forth without reſiſtance or obſtruction, cauſes Springs and Fountains; and theſe diſtilled waters within the Earth do nouriſh and refreſh the groſſer and dryer parts thereof. This Relation confirmed the Empereſs in the opinion concerning the motion of the Earth, and the fixedneſs of the Sun, as the Bird-men had informed her; and then ſhe asked the Worm-men, whether Minerals and Vegetables were generated by the ſame heat that is within the bowels of the Earth? To which they could give her no poſitive anſwer; onely, this they affirmed, That heat and cold were not the primary producing cauſes of either Vegetables or Minerals, or other ſorts of Creatures, but onely effects; and to prove this our aſſertion, ſaid they, we have obſerved, that by change of ſome ſorts of corporeal motions,

tions, that which is now hot, will become cold; and what is now cold, will grow hot; but the hotteſt place of all, we find to be the Center of the Earth: Neither do we obſerve, that the torrid Zone does contain ſo much Gold and Silver as the Temperate; nor is there great ſtore of Iron and Lead whereſoever there is Gold; for theſe metals are moſt found in colder climates towards either of the Poles. This obſervation, the Empereſs commanded them to confer with her Chymiſts, the Ape-men, to let them know that Gold was not produced by a violent, but a temperate degree of heat. She asked further, Whether Gold could not be made by Art? They anſwered, That they could not certainly tell her Majeſty, but if it was poſsible to be done, they thought Tin, Lead, Braſs, Iron and Silver, to be the fitteſt metals for ſuch an Artificial tranſmutation. Then ſhe asked them, Whether Art could produce Iron, Tin, Lead, or Silver? They anſwered, not, in their opinion. Then I perceive, replied the Empereſs, that your judgments are very irregular, ſince you believe that Gold, which is ſo fixt a metal, that nothing has been found as yet which could occaſion a diſſolution of its interior figure, may be made by Art, and not Tin, Lead, Iron, Copper or Silver, which yet are ſo far weaker, and meaner metals then Gold is. But the Worm-men excuſed themſelves, that they were ignorant in that Art, and that ſuch queſtions belonged more properly to the

the Ape-men, which were Her Majeſties Chymiſts.

Then the Empereſs asked them, Whether by their ſenſitive perceptions they could obſerve the interior corporeal, figurative motions both of Vegetables and Minerals? They anſwer'd, That their ſenſes could perceive them after they were produced, but not before; Nevertheleſs, ſaid they, although the interior, figurative motions of natural Creatures are not ſubject to the exterior, animal, ſenſitive perceptions, yet by their rational perception they may judg of them, and of their productions if they be regular: Whereupon the Empereſs commanded the Bear-men to lend them ſome of their beſt Microſcopes; at which the Bear-men ſmilingly anſwered her Majeſty, that their Glaſſes would do them but little ſervice in the bowels of the Earth, becauſe there was no light; for, ſaid they, our Glaſſes do onely repreſent exterior objects, according to the various reflections and poſitions of light; and whereſoever light is wanting, the glaſſes wil do no good. To which the Worm-men replied, that although they could not ſay much of refractions, reflections, inflections, and the like; yet were they not blind, even in the bowels of the Earth; for they could ſee the ſeveral ſorts of Minerals, as alſo minute Animals, that lived there, which minute animal Creatures were not blind neither, but had ſome kind of ſenſitive perception that was as ſerviceable to them, as ſight, taſte, ſmell, touch,

hearing, *&c.* was to other animal Creatures: By which it is evident, That Nature has been as bountiful to thoſe Creatures that live underground, or in the bowels of the Earth, as to thoſe that live upon the ſurface of the Earth, or in the Air, or in Water. But howſoever, proceeded the Worm-men, although there is light in the bowels of the Earth, yet your Microſcopes will do but little good there, by reaſon thoſe Creatures that live under ground have not ſuch an optick ſenſe as thoſe that live on the ſurface of the Earth: wherefore, unleſs you had ſuch glaſſes as are proper for their perception, your Microſcopes will not be any ways advantagious to them. The Empereſs ſeem'd well pleaſed with this anſwer of the Worm-men; and asked them further, whether Minerals and all other Creatures within the Earth, were colourleſs? At which queſtion they could not forbear laughing; and when the Empereſs asked the reaſon why they laught; We moſt humbly beg your Majeſties pardon, replied they; for we could not chuſe but laugh, when we heard of a colourleſs body. Why, ſaid the Empereſs, colour is onely an accident, which is an immaterial thing, and has no being of it ſelf, but in an other body. Thoſe, replied they, that informed your Majeſty thus, ſurely their rational motions were very irregular; For how is it poſsible, that a natural nothing can have a being in Nature? If it be no ſubſtance, it cannot have a being, and if no being, it is nothing; Wherefore the diſtinction

ction between ſubſiſting of it ſelf, and ſubſiſting in another body, is a meer nicety, and non-ſenſe; for there is nothing in Nature that can ſubſiſt of, or by it ſelf, (I mean ſingly) by reaſon all parts of Nature are compoſed in one body, and though they may be infinitely divided, commixed and changed in their particulars, yet in general, parts cannot be ſeparated from parts as long as Nature laſts; nay, we might as probably affirm, that Infinite Nature would be as ſoon deſtroyed, as that one Atome could periſh; and therefore your Majeſty may firmly believe, that there is no body without colour, nor no colour without body; for colour, figure, place, magnitude and body, are all but one thing, without any ſeparation or abſtraction from each other.

The Empereſs was ſo wonderfully taken with this diſcourſe of the Worm-men, that ſhe not onely pardoned the rudeneſs they committed in laughing at firſt at her queſtion, but yielded a full aſſent to their opinion, which ſhe thought the moſt rational that ever ſhe had heard yet; and then proceeding in her queſtions, enquired further, whether they had obſerved any ſeminal principles within the Earth free from all dimenſions and qualities, which produced Vegetables, Minerals, and the like? To which they anſwered, That concerning the ſeeds of Minerals, their ſenſitive perceptions had never obſerved any; but Vegetables had certain ſeeds out of which they were produced. Then

ſhe

ſhe asked, whether thoſe ſeeds of Vegetables loſt their ſpecies; that is, were annihilated in the production of their off-ſpring? To which they anſwered, That by an annihilation, nothing could be produced, and that the ſeeds of Vegetables were ſo far from being annihilated in their productions, that they did rather numerouſly increaſe and multiply; for the diviſion of one ſeed, ſaid they, does produce numbers of ſeeds out of it ſelf. But replied the Empreſs, A particular part cannot increaſe of it ſelf. 'Tis true, anſwer'd they: but they increaſe not barely of themſelves, but by joining and commixing with other parts, which do aſsiſt them in their productions, and by way of imitation form or figure their own parts into ſuch or ſuch particulars. Then, I pray inform me, ſaid the Empereſs, what diſguiſe thoſe ſeeds put on, and how they do conceal themſelves in their tranſmutations? They anſwered, That ſeeds did no ways diſguiſe or conceal, but rather divulge themſelves in the multiplication of their off-ſpring; onely they did hide and conceal themſelves from their ſenſitive perceptions ſo, that their figurative and productive motions were not perceptible by animal Creatures. Again, the Empereſs asked them, whether there were any Non-beings within the Earth? To which they anſwered, That they never heard of any ſuch thing; and that, if her Majeſty would know the truth thereof, ſhe muſt ask thoſe Creatures that are called Immaterial Spirits, which had a great affinity with Non-

beings,

beings, and perhaps could give her a ſatisfactory anſwer to this queſtion. Then ſhe deſired to be informed, what opinion they had of the beginning of forms? They told her Majeſty, That they did not underſtand what ſhe meant by this expreſsion; For, ſaid they, there is no beginning in Nature, no not of Particulars, by reaſon Nature is Eternal and Infinite, and her particulars are ſubject to infinite changes and tranſmutations by vertue of their own corporeal, figurative ſelf-motions; ſo that there's nothing new in Nature, nor properly a beginning of any thing. The Empereſs ſeem'd well ſatisfied with all thoſe anſwers, and inquired further, whether there was no Art uſed by thoſe Creatures that live within the Earth? Yes, anſwered they: for the ſeveral parts of the Earth do join and aſsiſt each other in compoſition or framing of ſuch or ſuch particulars; and many times, there are factions and diviſions, which cauſe productions of mixt ſpecies's; as for example, weeds, inſtead of ſweet flowers and uſeful fruits; but Gardeners and Husbandmen uſe often to decide their quarrels, and cauſe them to agree; which though it ſhews a kindneſs to the differing parties, yet 'tis a great prejudice to the Worms, and other animal Creatures that live under ground; for it moſt commonly cauſes their diſſolution and ruine, at beſt they are driven out of their habitations. What, ſaid the Empereſs, are not Worms produced out of the Earth? Their production in general, anſwered they, is like

the production of all other natural Creatures, proceeding from the corporeal figurative motions of Nature; but as for their particular productions, they are according to the nature of their ſpecies; ſome are produced out of flowers, ſome out of roots, ſome out of fruits, ſome out of ordinary Earth. Then they are very ungrateful Children, replied the Empereſs, that they feed on their own Parents which gave them life. Their life, anſwered they, is their own, and not their Parents; for no part or creature of Nature can either give or take away life, but parts do onely aſsiſt and join with parts, either in the diſſolution or production of other parts and Creatures.

After this, and ſeveral other Conferences, which the Empereſs held with the Worm-men, ſhe diſmiſſed them; and having taken much ſatisfaction in ſeveral of their anſwers, encouraged them in their ſtudies and obſervations. Then ſhe made a convocation of her Chymiſts, the Ape-men, and commanded them to give her an account of the ſeveral Tranſmutations which their Art was able to produce. They begun firſt with a long and tedious diſcourſe concerning the Primitive Ingredients of Natural bodies, and how, by their Art, they had found out the principles out of which they conſiſt. But they did not all agree in their opinions; for ſome ſaid, That the Principles of all natural bodies were the four Elements, Fire, Air, Water, Earth, out of which they were compoſed: Others rejected this

this Elementary commixture, and ſaid, There were many bodies out of which none of the four Elements could be extracted by any degree of Fire whatſoever; and that, on the other ſide, there were divers bodies, whoſe reſolution by fire reduced them into more then four different ingredients; and theſe affirmed, that the onely principles of natural bodies were Salt, Sulphur, and Mercury: Others again declared, That none of the forementioned could be called the True principles of natural bodies, but that by their induſtry and pains which they had taken in the Art of Chymiſtry, they had diſcovered, that all natural bodies were produced but from one Principle, which was Water; for all Vegetables, Minerals and Animals, ſaid they, are nothing elſe, but ſimple water diſtinguiſhed into various figures by the vertue of their ſeeds. But after a great many debates and contentions about this ſubject, the Empereſs being ſo much tired that ſhe was not able to hear them any longer, impoſed a general ſilence upon them, and then declared her ſelf in this following diſcourſe:

I am too ſenſible of the pains you have taken in the Art of Chymiſtry, to diſcover the principles of natural bodies, and wiſh they had been more profitably beſtowed upon ſome other, then ſuch experiments; for both by my own contemplation, and the obſervations which I have made by my rational and ſenſitive perception upon Nature, and her works, I find, that

that Nature is but one Infinite ſelf-moving body, which by the vertue of its ſelf-motion, is divided into infinite parts, which parts being reſtleſs, undergo perpetual changes and tranſmutations by their infinite compoſitions and diviſions. Now, if this be ſo, as ſurely, according to regular ſenſe and reaſon, it appears no otherwiſe; it is in vain to look for primary ingredients, or conſtitutive principles of natural bodies, ſince there is no more but one Univerſal principle of Nature, to wit, ſelf-moving Matter, which is the onely cauſe of all natural effects. Next, I deſire you to conſider, that Fire is but a particular Creature, or effect of Nature, and occaſions not onely different effects in ſeveral bodies, but on ſome bodies has no power at all; witneſs Gold, which never could be brought yet to change its interior figure by the art of Fire; and if this be ſo, Why ſhould you be ſo ſimple as to believe that fire can ſhew you the principles of Nature? and that either the four Elements, or Water onely, or Salt, Sulphur and Mercury, all which are no more but particular effects and Creatures of Nature, ſhould be the Primitive ingredients or Principles of all natural bodies? Wherefore, I will not have you to take more pains, and waſte your time in ſuch fruitleſs attempts, but be wiſer hereafter; and buſie your ſelves with ſuch Experiments as may be beneficial to the publick.

The

The Empereſs having thus declared her mind to the Ape-men, and given them better Inſtructions then perhaps they expected, not knowing that her Majeſty had ſuch great and able judgment in Natural Philoſophy, had ſeveral conferences with them concerning Chymical Preparations, which for brevities ſake, I'le forbear to rehearſe: Amongſt the reſt, ſhe asked, how it came, that the Imperial Race appear'd ſo young, and yet was reported to have lived ſo long; ſome of them two, ſome three, and ſome four hundred years? and whether it was by Nature, or a ſpecial Divine bleſsing? To which they anſwered, That there was a certain Rock in the parts of that World, which contained the Golden Sands, which Rock was hollow within, and did produce a Gum that was a hundred years before it came to its full ſtrength and perfection; this Gum, ſaid they, if it be held in a warm hand, will diſſolve into an Oyl, the effects whereof are following: It being given every day for ſome certain time to an old decayed man, in the bigneſs of a little Pea, will firſt make him ſpit for a week, or more; after this, it will cauſe Vomits of Flegm, and after that it will bring forth by vomits, humors of ſeveral colours; firſt of a pale yellow, then of a deep yellow, then of a green, and laſtly of a black colour; and each of theſe humors have a ſeveral taſte, ſome are freſh, ſome ſalt, ſome ſower, ſome bitter, and ſo forth; neither do all theſe Vomits make them ſick, but they come out on a ſudden and

unawares, without any pain or trouble to the patient: And after it hath done all theſe mentioned effects, and clear'd both the ſtomack and ſeveral other parts of the body, then it works upon the brain, and brings forth of the noſe ſuch kind of humors as it did out of the mouth, and much after the ſame manner; then it will purge by ſtool, then by urine, then by ſweat, and laſtly by bleeding at the noſe, and the Emerodes; all which effects it will perform within the ſpace of ſix weeks, or a little more; for it does not work very ſtrongly, but gently, and by degrees: Laſtly, when it has done all this, it will make the body break out into a thick ſcab, and cauſe both Hair, Teeth and Nails to come off; which ſcab being arrived to its full maturity, opens firſt along the back, and comes off all in a piece like an armour, and all this is done within the ſpace of four months. After this the Patient is wrapt into a ſear-cloth, prepared of certain Gums and Juices, wherein he continues until the time of nine Months be expired from the firſt beginning of the cure, which is the time of a Childs formation in the womb. In the mean while his diet is nothing elſe but Eagles-eggs, and Hinds-milk; and after the Sear-cloth is taken away, he will appear of the age of Twenty, both in ſhape, and ſtrength. The weaker ſort of this Gum is ſoveraign in healing of wounds, and curing of ſlight diſtempers. But this is alſo to be obſerved, that none of the Imperial race does uſe any other drink but Lime-water, or water

water in which Lime-ſtone is immerged; their meat is nothing elſe but Fowl of ſeveral ſorts, their recreations are many, but chiefly Hunting.

This Relation amazed the Empereſs very much; for though in the world ſhe came from, ſhe had heard great reports of the Philoſophers-ſtone, yet had ſhe not heard of any that had ever found it out, which made her believe that it was but a Chymera; ſhe called alſo to mind, that there had been in the ſame world a man who had a little Stone which cured all kinds of Diſeaſes outward and inward, according as it was applied; and that a famous Chymiſt had found out a certain liquor called Alkaheſt, which by the vertue of its own fire, conſumed all diſeaſes; but ſhe had never heard of a Medicine that could renew old Age, and render it beautiful, vigorous and ſtrong: Nor would ſhe have ſo eaſily believed it, had it been a medicine prepared by Art; for ſhe knew that Art, being Natures Changeling, was not able to produce ſuch a powerful effect, but being that the Gum did grow naturally, ſhe did not ſo much ſcruple at it; for ſhe knew that Natures Works are ſo various and wonderful, that no particular Creature is able to trace her ways.

The Conferences of the Chymiſts being finiſhed, the Empereſs made an Aſſembly of her Galenical Phyſicians, her Herbaliſts and Anatomiſts; and firſt ſhe enquired of her Herbaliſts the particular effects of ſeveral Herbs and Drugs, and whence they proceeded?

To

To which they anſwered, that they could, for the moſt part, tell her Majeſty the vertues and operations of them, but the particular cauſes of their effects were unknown; onely thus much they could ſay, that their operations and vertues were generally cauſed by their proper inherent, corporeal, figurative motions, which being infinitely various in Infinite Nature, did produce infinite ſeveral effects. And it is obſerved, ſaid they, that Herbs and Drugs are as wiſe in their operations, as Men in their words and actions; nay, wiſer; and their effects are more certain then Men in their opinions; for though they cannot diſcourſe like Men, yet have they ſenſe and reaſon, as well as Men; for the diſcurſive faculty is but a particular effect of ſenſe and reaſon in ſome particular Creatures, to wit, Men, and not a principle of Nature, and argues often more folly then wiſdom. The Empereſs asked, Whether they could not by a compoſition and commixture of other Drugs, make them work other effects then they did, uſed by themſelves? They anſwered, That they could make them produce artificial effects, but not alter their inherent, proper and particular natures.

Then the Empereſs commanded her Anatomiſts to diſſect ſuch kinds of Creatures as are called Monſters. But they anſwered her Majeſty, That it would be but an unprofitable and uſeleſs work, and hinder their better imployments; for when we diſſect dead Animals, ſaid they, it is for no other end, but to obſerve what defects

defects or diſtempers they had, that we may cure the like in living ones, ſo that all our care and induſtry concerns onely the preſervation of Mankind; but we hope your Majeſty will not preſerve Monſters, which are moſt commonly deſtroyed, except it be for novelty; neither will the diſſection of Monſters prevent the errors of Natures irregular actions; for by diſſecting ſome, we cannot prevent the production of others; ſo that our pains and labour will be to no purpoſe, unleſs to ſatisfie the vain curioſities of inquiſitive men. The Empereſs replied, That ſuch diſſections would be very beneficial to Experimental Philoſophers. If Experimental Philoſophers, anſwer'd they, do ſpend their time in ſuch uſeleſs inſpections, they waſte it in vain, and have nothing but their labour for their pains.

Laſtly, her Majeſty had ſome Conferences with the Galenick Phyſicians about ſeveral Diſeaſes, and amongſt the reſt, deſired to know the cauſe and nature of Apoplexy, and the ſpotted Plague. They anſwered, That a deadly Apoplexy was a dead palſie of the brain, and the ſpotted Plague was a Gangrene of the Vital parts, and as the Gangrene of outward parts did ſtrike inwardly; ſo the Gangrene of inward parts, did break forth outwardly; which is the cauſe, ſaid they, that as ſoon as the ſpots appear, death follows; for then it is an infallible ſign, that the body is throughout infected with a Gangrene, which is a ſpreading

evil; but ſome Gangrenes do ſpread more ſuddenly then others, and of all ſorts of Gangrenes, the Plaguy-gangrene is the moſt infectious; for other Gangrenes infect but the next adjoining parts of one particular body, and having killed that ſame Creature, go no further, but ceaſe; when as, the Gangrene of the Plague, infects not onely the adjoining parts of one particular Creature, but alſo thoſe that are diſtant; that is, one particular body infects another, and ſo breeds a Univerſal Contagion. But the Empereſs being very deſirous to know in what manner the Plague was propagated and became ſo contagious, asked, Whether it went actually out of one body into another? To which they anſwered, That it was a great diſpute amongſt the Learned of their profeſsion, whether it came by a diviſion and compoſition of parts; that is, by expiration and inſpiration; or whether it was cauſed by imitation: Some Experimental Philoſophers, ſaid they, will make us believe, that by the help of their Microſcopes, they have obſerved the Plague to be a body of little Flyes like Atomes, which go out of one body into another, through the ſenſitive paſſages; but the moſt experienced and wiſeſt of our ſociety, have rejected this opinion as a ridiculous fancy, and do for the moſt part believe, that it is cauſed by an imitation of Parts, ſo that the motions of ſome parts which are ſound, do imitate the motions of thoſe that are infected, and that by this means, the Plague becomes contagious and ſpreading.

The

The Empereſs having hitherto ſpent her time in the Examination of the Bird- Fiſh- Worm- and Ape-men, *&c.* and received ſeveral Intelligences from their ſeveral imployments; at laſt had a mind to divert her ſelf after her ſerious diſcourſes, and therefore ſhe ſent for the Spider-men, which were her Mathematicians, the Lice-men which were her Geometricians, and the Magpie- Parrot- and Jackdaw-men, which were her Orators and Logicians. The Spider-men came firſt, and preſented her Majeſty with a table full of Mathetical points, lines and figures of all ſorts of ſquares, circles, triangles, and the like; which the Empereſs, notwithſtanding that ſhe had a very ready wit, and quick apprehenſion, could not underſtand; but the more ſhe endeavoured to learn, the more was ſhe confounded: Whether they did ever ſquare the circle, I cannot exactly tell, nor whether they could make imaginary points and lines; but this I dare ſay, That their points and lines were ſo ſlender, ſmall and thin, that they ſeem'd next to Imaginary. The Mathematicians were in great eſteem with the Empereſs, as being not onely the chief Tutors and Inſtructors in many Arts, but ſome of them excellent Magicians and Informers of Spirits, which was the reaſon their Characters were ſo abſtruſe and intricate, that the Empereſs knew not what to make of them. There is ſo much to learn in your Art, ſaid ſhe, that I can neither ſpare time from other affairs to buſie my ſelf in your profeſsion,

profeſsion ; nor, if I could, do I think I ſhould ever be able to underſtand your Imaginary points, lines and figures, becauſe they are Non-beings.

Then came the Lice-men, and endeavoured to meaſure all things to a hairs breadth, and weigh them to an Atome; but their weights would ſeldom agree, eſpecially in the weighing of Air, which they found a task impoſsible to be done; at which the Empereſs began to be diſpleaſed, and told them, that there was neither Truth nor Juſtice in their Profeſsion; and ſo diſſolved their ſociety.

After this the Empereſs was reſolved to hear the Magpie- Parrot- and Jackdaw-men, which were her profeſſed Orators and Logicians ; whereupon one of the Parrot-men roſe with great formality, and endeavoured to make an Eloquent Speech before her Majeſty; but before he had half ended, his arguments and diviſions being ſo many, that they cauſed a great confuſion in his brain, he could not go forward, but was forced to retire backward, with the greateſt diſgrace both to himſelf, and the whole ſociety ; and although one of his brethen endeavoured to ſecond him by another ſpeech, yet was he as far to ſeek as the former. At which the Empereſs appear'd not a little troubled, and told them, That they followed too much the Rules of Art, and confunded themſelves with too nice formalities and diſtinctions; but ſince I know, ſaid ſhe, that you are a people who have naturally voluble tongues, and

and good memories; I deſire you to conſider more the ſubject you ſpeak of, then your artificial periods, connexions and parts of ſpeech, and leave the reſt to your natural Eloquence; which they did, and ſo became very eminent Orators.

Laſtly, her Imperial Majeſty being deſirous to know, what progreſs her Logicians had made in the Art of diſputing, Commanded them to argue upon ſeveral Themes or ſujects; which they did; and having made a very nice diſcourſe of Logiſtical terms and propoſitions, entered into a diſpute by way of Syllogiſtical Arguments, through all the Figures and Modes: One began with an argment of the firſt mode of the firſt figure, thus:

Every Politician is wiſe:
Every Knave is a Politician,
Therefore every Knave is wiſe.

Another contradicted him with a Syllogiſm of the ſecond mode of the ſame figure, thus:

No Politician is wiſe:
Every Knave is a Politician,
Therefore no Knave is wiſe.

The third made an Argument in the third Mode of the ſame figure, after this manner:

Every Politician is wiſe:
Some Knaves are Politicians,
Therefore ſome Knaves are wiſe.

The Fourth concluded with a Syllogiſm in the fourth Mode of the ſame figure, thus:

No Politician is wiſe:
Some Knaves are Polticians,
Therefore ſome Knaves are not wiſe.

After this they took another ſubject, and one propounded this Syllogiſm:

Every Philoſopher is wiſe:
Every Beaſt is wiſe,
Therefore every Beaſt is a Philoſopher.

But another ſaid that this Argument was falſe, therefore he contradicted him with a Syllogiſm of the ſecond figure of the fourth Mode, thus:

Every Philoſopher is wiſe:
Some Beaſts are not wiſe,
Therefore ſome Beaſts are not Philoſophers.

Thus they argued, and intended to go on, but the Empereſs interrupted them: I have enough, ſaid ſhe, of your chopt Logick, and will hear no more of your Syllogiſmes; for it diſorders my reaſon, and puts my brain on the rack; your formal argumentations are able to ſpoil all natural wit; and I'le have you to conſider, that Art does not make Reaſon, but Reaſon makes Art; and therefore as much as Reaſon is above Art, ſo much is a natural rational diſcourſe to be preferred before an artificial: For Art is, for the moſt part, irregular, and diſorders mens underſtandings more then it rectifies

fies them, and leads them into a Labyrinth whence they'l never get out, and makes them dull and unfit for uſeful imployments; eſpecially your Art of Logick, which conſiſts onely in contradicting each other, in making ſophiſmes, and obſcuring Truth, inſtead of clearing it.

But they replied her Majeſty, That the knowledg of Nature, that is, Natural Philoſopy, would be imperfect without the Art of Logick, and that there was an improbable Truth which could no otherwiſe be found out then by the Art of diſputing. Truly, ſaid the Empereſs, I do believe that it is with Natural Philoſophy, as it is with all other effects of Nature; for no particular knowledg can be perfect, by reaſon knowledg is dividable, as well as compoſable; nay, to ſpeak properly, Nature her ſelf cannot boaſt of any perfection, but God himſelf; becauſe there are ſo many irregular motions in Nature, and 'tis but a folly to think that Art ſhould be able to regulate them, ſince Art it ſelf is, for the moſt part, irregular. But as for Improbable Truth, I know not what your meaning is; for Truth is more then Improbability; nay, there there is ſo much difference between Truth and Improbability, that I cannot conceive it poſsible how they can be joined together. In ſhort, ſaid ſhe, I do no ways approve of your profeſsion; and though I will not diſſolve your ſociety, yet I ſhall never take delight in hearing you any more; wherefore confine your diſputations to your Schools, leſt

leſt beſides the Commonwealth of Learning, they diſturb alſo Divinity and Policy, Religion and Laws, and by that means draw an utter ruine and deſtruction both upon Church and State.

After the Empereſs had thus finiſh'd the Diſcourſes and Conferences with the mentioned Societies of her Vertuoſo's, ſhe conſidered by her ſelf the manner of their Religion, and finding it very defective, was troubled, that ſo wiſe and knowing a people ſhould have no more knowledg of the Divine Truth; Wherefore ſhe conſulted with her own thoughts, whether it was poſsible to convert them all to her own Religion, and to that end ſhe reſolved to build Churches, and make alſo up a Congregation of Women, whereof ſhe intended to be the head her ſelf, and to inſtruct them in the ſeveral points of her Religion. This ſhe had no ſooner begun, but the Women, which generally had quick wits, ſubtile conceptions, clear underſtandings, and ſolid judgments, became, in a ſhort time, very devout and zealous Siſters; for the Empereſs had an excellent gift of Preaching, and inſtructing them in the Articles of Faith; and by that means, ſhe converted them not onely ſoon, but gained an extraordinary love of all her ſubjects throughout that World. But at laſt, pondering with her ſelf the inconſtant nature of Mankind, and fearing that in time they would grow weary, and deſert the divine Truth, following their own fancies, and living according to their own deſires, ſhe began to

be

be troubled that her labours and pains ſhould prove of ſo little effect, and therefore ſtudied all manner of ways to prevent it. Amongſt the reſt, ſhe call'd to mind a Relation which the Bird-men made her once, of a Mountain that did burn in flames of fire; and thereupon did immediately ſend for the wiſeſt and ſubtileſt of her Worm-men, commanding them to diſcover the cauſe of the Eruption of that ſame fire; which they did; and having dived to the very bottom of the Mountain, informed her Majeſty, That there was a certain ſort of Stone, whoſe nature was ſuch, that being wetted, it would grow exceſsively hot, and break forth into a flaming-fire, until it became dry, and then it ceaſed from burning. The Empereſs was glad to hear this news, and forthwith deſired the Worm-men to bring her ſome of that ſtone, but be ſure to keep it ſecret: She ſent alſo for the Bird-men, and asked them whether they could not get her a piece of the Sun-ſtone? They anſwered, That it was impoſsible, unleſs they did ſpoil or leſſen the light of the World: but, ſaid they, if it pleaſe your Majeſty, we can demoliſh one of the numerous Stars of the Sky, which the World will never miſs.

The Empereſs was very well ſatisfied with this propoſal, and having thus imployed theſe two ſorts of men, in the mean while builded two Chappels one above another; the one ſhe lined throughout with Diamonds, both Roof, Walls and Pillars; but the other

ſhe reſovled to line with the Star-ſtone; the Fire-ſtone ſhe placed upon the the Diamond-lining, by reaſon Fire has no power on Diamonds; and when ſhe would have that Chappel where the Fire-ſtone was, appear all in a flame, ſhe had by the means of Artificial-pipes, water conveighed into it, which by turning the Cock, did, as out of a Fountain, ſpring over all the room, and as long as the fire-ſtone was wet, the Chappel ſeemed to be all in a flaming fire.

The other Chappel, which was lined with the Star-ſtone, did onely caſt a ſplendorous and comfortable light; both the Chappels ſtood upon Pillars, juſt in the middle of a round Cloyſter which was dark as night; neither was there any other light within them, but what came from the Fire- and Star-ſtone; and being every where open, allowed to all that were within the compaſs of the Cloyſter, a free proſpect into them; beſides, they were ſo artificially contrived, that they did both move in a circle about their own Centres, without intermiſsion, contrary ways. In the Chappel which was lined with the Fire-ſtone, the Empereſs preached Sermons of terror to the wicked, and told them of the puniſhments for their ſins, to wit, that after this life they ſhould be tormented in an everlaſting fire. But in the other Chappel lined with the Star-ſtone, ſhe preached Sermons of comfort to thoſe that repented of their ſins, and were troubled at their own wickedneſs; Neither did the heat of the flame in the leaſt

leaſt hinder her ; for the Fire-ſtone did not caſt ſo great a heat but the Empereſs was able to endure it; by reaſon the water which was poured on the ſtone, by its own ſelf-motion turned into a flaming fire, occaſioned by the natural motions of the Stone, which made the flame weaker then if it had been fed by ſome other kind of fuel; the other Chappel where the Star-ſtone was, although it did caſt a great light, yet was it without all heat, and the Empereſs appear'd like an Angel in it; and as that Chappel was an embleme of *Hell*, ſo this was an embleme of *Heaven*. And thus the Empereſs, by Art, and her own ingenuity, did not onely convert the Blazing-world to her own Religion, but kept them in a conſtant belief, without inforcement or blood-ſhed; for ſhe knew well, that belief was a thing not to be forced or preſſed upon the people, but to be inſtilled into their minds by gentle perſwaſions ; and after this manner ſhe encouraged them alſo in all other duties and employments, for Fear, though it makes people obey, yet does it not laſt ſo long, nor is it ſo ſure a means to keep them to their duties, as Love.

Laſt of all, when ſhe ſaw that both Chuch and State was now in a well-ordered and ſetled condition, her thoughts reflected upon the world ſhe came from ; and though ſhe had a great deſire to know the condition of the ſame, yet could ſhe adviſe no manner of way how to gain any knowledg thereof; at laſt, after many ſerious conſiderations, ſhe conceived that it was impoſsible to be

be done by any other means, then by the help of Immaterial Spirits; wherefore ſhe made a Convocation of the moſt learned, witty and ingenious of all the forementioned ſorts of men, and deſired to know of them, whether there were any Immaterial Spirits in their World. Firſt, ſhe enquired of the Worm-men, whether they had perceived ſome within the Earth? They anſwered her Majeſty, That they never knew of any ſuch Creatures; for whatſoever did dwell within the Earth, ſaid they, was imbodied and material. Then ſhe asked the Flye-men, whether they had obſerved any in the Air? for you having numerous eyes, ſaid ſhe, will be more able to perceive them, then any other Creatures. To which they anſwered her Majeſty, That although Spirits, being immaterial, could not be perceived by the Worm-men in the Earth, yet they perceived that ſuch Creatures did lodg in the vehicles of the Air. Then the Empereſs asked, Whether they could ſpeak to them, and whether they did underſtand each other? The Fly-men anſwered, That thoſe Spirits were always cloath'd in ſome ſort or other of Material Garments; which Garments were their Bodies, made, for the moſt part, of Air; and when occaſion ſerved, they could put on any other ſort of ſubſtances; but yet they could not put theſe ſubſtances into any form or ſhape, as they pleaſed. The Empereſs asked the Fly-men, whether it was poſsible that ſhe could be acquainted, and have ſome conferences with them? They

They anſwered, They did verily believe ſhe might. Hereupon the Empereſs commanded the Fly-men to ask ſome of the Spirits, whether they would be pleaſed to give her a viſit? This they did; and after the Spirits had preſented themſelves to the Empereſs, (in what ſhapes or forms, I cannot exactly tell) after ſome few complements that paſſed between them, the Empereſs told the Spirits that ſhe queſtioned not, but they did know how ſhe was a ſtranger in that World, and by what miraculous means ſhe was arrived there; and ſince ſhe had a great deſire to know the condition of the World ſhe came from, her requeſt to the Spirits was, to give her ſome information thereof, eſpecially of thoſe parts of the world where ſhe was born, bred, and educated, as alſo of her particular friends and acquaintance; all which, the Spirits did according to her deſire; at laſt, after a great many conferences and particular intelligences, which the Spirits gave the Empereſs, to her great ſatisfaction and content, ſhe enquired after the moſt famous Students, Writers, and Experimental Philoſophers in that World, which they gave her a full relation of; amongſt the reſt ſhe enquired, whether there were none that had found out yet the Jews Cabbala? Several have endeavoured it, anſwered the Spirits, but thoſe that came neareſt (although themſelves denied it) were one Dr. *Dee*, and one *Edward Kelly*, the one repreſenting *Moſes*, and the other *Aaron*; for *Kelly* was to Dr. *Dee*, as *Aaron* to *Moſes*;

but yet they proved at laſt but meer Cheats, and were deſcribed by one of their own Country-men, a famous Poet, named *Ben. Johnſon*, in a Play call'd *The Alchymiſt*, where he expreſſed *Kelly* by Capt. *Face*, and *Dee* by Dr. *Subtle*, and their two Wives by *Doll Common*, and the Widow; by the Spaniard in the Play, he meant the Spaniſh Ambaſſador, and by Sir *Epicure Mammon*, a Poliſh Lord. The Empereſs remembred that ſhe had ſeen the Play, and asked the Spirits whom he meant by the name of *Ananias*? Some Zealous Brethren, anſwered they, in *Holland*, *Germany*, and ſeveral other places. Then ſhe asked them, Who was meant by the Druggiſt? Truly, anſwered the Spirits, we have forgot, it being ſo long ſince it was made and acted. What, replied the Empreſs, can Spirits forget? Yes, ſaid the Spirits; for what is paſt, is onely kept in memory, if it be not recorded. I did believe, ſaid the Empereſs, That Spirits had no need of memory, or remembrance, and could not be ſubject to forgetfulneſs. How can we, anſwered they, give an account of things preſent, if we had no memory, but eſpecially of things paſt, unrecorded, if we had no remembrance? Said the Empereſs, By preſent knowledg and underſtanding. The Spirits anſwered, That preſent knowledg and underſtanding was of actions or things preſent, not of paſt. But, ſaid the Empereſs, you know what is to come, without memory or remembrance, and therefore you may know what

what is paſt without memory and remembrance. They anſwered, That their foreknowledg was onely a prudent and ſubtile obſervation made by a comparing of things or actions paſt, with thoſe that are preſent, and that Remembrance was nothing elſe but a repetition of things or actions paſt.

Then the Empereſs asked the Spirits, Whether there was a threefold *Cabbala*? They anſwered, *Dee* and *Kelly* made but a two-fold *Cabbala*, to wit, of the Old and New Teſtament, but others might not onely make two or three, but threeſcore *Cabbala's*, if they pleaſed. The Empereſs asked, Whether it was a Traditional, or meerly a Scriptural, or whether it was a Literal, Philoſophical, or Moral *Cabbala*? Some, anſwered they, did believe it meerly Traditional, others Scriptural, ſome Literal, and ſome Metaphorical; but the truth is, ſaid they, 'twas partly one, and partly the other; as partly a Traditional, partly a Scriptural, partly Literal, partly Metaphorical. The Empereſs asked further, Whether the Cabbala was a work onely of natural reaſon, or of divine inſpiration? Many, ſaid the Spirits, that write Cabbala's pretend to divine Inſpirations, but whether it be ſo, or not; it does not belong to us to judg; onely this we muſt needs confeſs, that it is a work which requires a good wit, and a ſtrong faith, but not natural reaſon; for though natural reaſon is moſt perſwaſive, yet Faith is the chief that is required in Cabbaliſts. But, ſaid the Empereſs,

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Is there not Divine Reaſon, as well as there is Natural? No, anſwered they: for there is but a Divine Faith, and as for Reaſon it is onely natural; but you Mortals are ſo puzled about this divine Faith, and natural Reaſon, that you do not know well how to diſtinguiſh them, but confound them both, which is the cauſe you have ſo many divine Philoſophers who make a Gallimafry both of Reaſon and Faith. Then ſhe asked, Whether pure natural Philoſophers were Cabbaliſts? They anſwered, No; but onely your Myſtical or Divine Philoſophers, ſuch as ſtudy beyond ſenſe and reaſon. She enquired further, Whether there was any Cabbala in God, or whether God was full of Ideas? They anſwered, There could be nothing in God, nor could God be full of any thing, either forms or figures, but of himſelf; for God is the Perfection of all things, and an Unexpreſsible Being, beyond the conception of any Creature, either Natural or Supernatural. Then I pray inform me, ſaid the Empereſs, Whether the Jews, or any other Cabbala, conſiſt in numbers? The Spirits anſwered, No: for numbers are odd, and different, and would make a diſagreement in the Cabbala. But ſaid ſhe again, Is it a ſin then not to know or underſtand the Cabbala? God is ſo merciful, anſwered they, and ſo juſt, that he will never damn the ignorant, and ſave onely thoſe that pretend to know him and his ſecret Counſels by their Cabbala's, but he loves thoſe that adore and worſhip

worſhip him with fear and reverence, and with a pure heart. She asked further, which of theſe two Cabbala's was moſt approved, the Natural, or Theological? The Theological, anſwered they, is myſtical, and belongs onely to Faith; but the Natural belongs to Reaſon. Then ſhe asked them, Whether Divine Faith was made out of Reaſon? No, anſwered they, for Faith proceeds onely from a Divine ſaving Grace, which is a peculiar Gift of God. How comes it then, replied ſhe, that Men, even thoſe that are of ſeveral opinions, have Faith more or leſs? A natural belief, anſwered they, is not a Divine Faith. But, proceeded the Empereſs, How are you ſure that God cannot be known? The ſeveral opinions you Mortals have of God, anſwered they, are ſufficient witneſſes thereof. Well then, replied the Empereſs, leaving this inquiſitive knowledg of God, I pray inform me, whether you Spirits give motion to natural bodies? No, anſwered they; but, on the contrary, natural material bodies give Spirits motion; for we Spirits, being incorporeal, have no motion but from our corporeal vehicles, ſo that we move by the help of our bodies, and not the bodies by the help of us; for pure Spirits are immovable. If this be ſo, replied the Empereſs, How comes it then that you can move ſo ſuddenly at a vaſt diſtance? They anſwered, That ſome ſorts of matter were more pure, rare, and conſequently more light and agil then others; and this was the rea-

ſon of their quick and ſudden motions. Then the Empereſs asked them, Whether they could ſpeak without a body, or bodily organs? No, ſaid they; nor could we have any bodily ſenſe, but onely knowledg. She asked, whether they could have knowledg without body? Not a natural, anſwered they, but a Supernatural knowledg, which is a far better knowledg then a natural. Then ſhe asked them, whether they had a General or Univerſal Knowledg? They anſwered, Single or particular created Spirits, have not; for not any Creature, but God Himſelf, can have an abſolute and perfect knowledg of all things. The Empereſs asked them further, Whether Spirits had inward and outward parts? No, anſwered they; for parts onely belong to bodies, not to Spirits. Again, ſhe asked them, whether their Vehicles were living bodies? They are ſelf-moving bodies, anſwered they, and therefore they muſt needs be living; for nothing can move it ſelf, without it hath life. Then, ſaid ſhe, it muſt neceſſarily follow, that this living, ſelf-moving body gives a Spirit motion, and not that the Spirit gives the body, as its vehicle, motion. You ſay very true, anſwered they, and we told you this before. Then the Empereſs asked them, of what forms of Matter thoſe Vehicles were? They ſaid they were of ſeveral different forms; ſome groſs and denſe, and others more pure, rare, and ſubtil. Then ſhe enquired, whether Immaterial Spirits were not of a Globous figure? They anſwered,

anſwered, Fgure and Body were but one thing; for no Body was without Figure, nor no Figure without Body; and that it was as much non-ſence to ſay, an Immaterial Figure, as to ſay an Immaterial Body. Again, ſhe asked, whether Spirits were not like Water, or Fire? No, ſaid they, for both Fire and Water are material; and we are no more like Fire or Water, then we are like Earth; nay, were it the pureſt and fineſt degree of Matter, even above the Heavens; for Immaterial Creatures cannot be likened or compared to Material; But, as we ſaid before, our Vehicles being material, are of ſeveral degrees, forms and ſhapes. But if you be not material, ſaid the Empereſs, how can you be Generators of all Creatures? We are no more, anſwered they, the Generators of material Creatures, then they are the Generators of us Spirits. Then ſhe asked, whether they did leave their Vehicles? No, anſwered they; for we being incorporeal, cannot leave or quit them; but our Vehicles do change into ſeveral forms and figures, according as occaſion requires. Then the Empereſs deſired the Spirits to tell her, whether Man was a little World? They anſwered, That if a Fly or Worm was a little World, then Man was ſo too. She asked again, whether our Fore-fathers had been as wiſe, as men were at preſent, and had underſtood ſenſe and reaſon, as well as they did now? They anſwered, That in former Ages they had been as wiſe as they are in this preſent, nay, wiſer; for, ſaid they, many

many in this age do think their Fore-fathers have been Fools, by which they prove themſelves to be ſuch. The Empereſs asked further, whether there was any Plaſtick power in Nature? Truly, ſaid the Spirits, Plaſtick power in a hard word, ſignifies no more then the power of the corporeal, figurative motions of Nature. After this, the Empereſs deſired the Spirits to inform her where the Paradiſe was, whether it was in the midſt of the World as a Centre of pleaſure? or whether it was the whole world, or a peculiar world by it ſelf, as a world of life, and not of matter; or whether it was mixt, as a world of living animal Creatures? They anſwered, That Paradiſe was not in the world ſhe came from, but in that world ſhe lived in at preſent; and that it was the very ſame place where ſhe kept her Court, and where her Palace ſtood, in the midſt of the Imperial City. The Empereſs asked further, whether in the beginning and Creation of the World, all Beaſts could ſpeak? They anſwered, That no Beaſts could ſpeak, but onely thoſe ſorts of Creatures which were Fiſh-men, Bear-men, Worm-men, and the like, which could ſpeak in the firſt Age, as well as they do now. She asked again, whether they were none of thoſe Spirits that frighted *Adam* out of the Paradiſe, at leaſt cauſed him not to return thither again. They anſwered they were not. Then ſhe deſired to be informed, whither *Adam* fled when he was driven out of the Paradiſe? Out of this World, ſaid they, you are now

Empereſs

Empereſs of, into the world you came from: If this be ſo, replied the Empereſs, then ſurely thoſe Cabbaliſts are much out of their ſtory, who believe the Paradiſe to be a world of Life onely, without Matter; for this world, though it be moſt pleaſant and fruitful, yet it is not a world of meer immaterial life, but a world of living, material Creatures. Without queſtion, they are, anſwered the Spirits; for not all Cabbalas are true. Then the Empereſs asked, That ſince it is mentioned in the ſtory of the Creation of the World, that *Eve* was tempted by the Serpent, whether the Devil was within the Serpent, or whether the Serpent tempted her without the Devil? They anſwered, That the Devil was within the Serpent. But how came it then, replied ſhe, that the Serpent was curſed? They anſwered, becauſe the Devil was in him: for are not thoſe men in danger of damnation which have the Devil within them, who perſwades them to believe and act wickedly? The Empereſs asked further, whether Light and the Heavens were all one. They anſwered, That that Region which contains the Lucid natural Orbs, was by mortals named Heaven; but the beatifical Heaven, which is the Habitation of the bleſſed Angels and Souls, was ſo far beyond it, that it could not be compared to any natural Creature. Then the Empereſs asked them, whether all Matter was fluid at firſt? They anſwered, That Matter was always as it is; and that ſome parts of Matter were rare, ſome denſe, ſome

fluid, ſome ſolid, *&c.* Neither was God bound to make all matter fluid at firſt. She asked further, whether Matter was immovable in it ſelf? We have anſwered you before, ſaid they, That there is no motion but in Matter; and were it not for the motion of Matter, we Spirits, could not move, nor give you any anſwer to your ſeveral queſtions. After this, the Empereſs asked the Spirits, whether the Univerſe was made within the ſpace of ſix days, or whether by thoſe ſix days, were ment ſo many Decrees or Commands of God? They anſwered her, that the World was made by the All-powerful Decree and Command of God; but whether there were ſix Decrees or Commands, or fewer, or more, no creature was able to tell. Then ſhe inquired, whether there was no myſtery in numbers? No other myſtery, anſwered the Spirits, but reckoning or counting, for numbers are onely marks of remembrance. But what do you think of the number of Four, ſaid ſhe, which Cabbaliſts make ſuch ado withal, and of the number of Ten, when they ſay that Ten is all, and that all numbers are virtually comprehended in four? We think, anſwered they, that Cabbaliſts have nothing elſe to do but to trouble their heads with ſuch uſeleſs fancies; for naturally there is no ſuch thing as prime or all in numbers; nor is there any other myſtery in numbers, but what man's fancy makes; but what men call Prime, or All, we do not know, becauſe they do not agree in the number of their opinion.

opinion. Then the Empereſs asked, whether the number of ſix was a ſymbole of Matrimony, as being made up of Male and Female, for two into three is ſix. If any number can be a ſymbole of Matrimony, anſwered the Spirits, it is not Six, but Two; if two may be allowed to be a number: for the act of Matrimony is made up of two joined in one. She asked again, what they ſaid to the number of Seven? whether it was not an Embleme of God, becauſe Cabbaliſts ſay, that it is neither begotten, nor begets any other number, There can be no Embleme of God, anſwered the Spirits; for if we do not know what God is, how can we make an Embleme of him? Nor is there any number in God, for God is the perfection himſelf, but numbers are imperfect; and as for the begetting of numbers, it is done by Multiplication and Addition; but Subſtraction is as a kind of death to numbers. If there be no myſtery in numbers, replied the Empereſs, then it is in vain to refer the Creation of the World to certain numbers, as Cabbaliſts do. The onely myſtery of numbers, anſwered they, concerning the Creation of the World is, that as numbers do multiply, ſo does the world. The Empereſs asked, how far numbers did multiply? The Spirits anſwered, to Infinite. Why, ſaid ſhe, Infinite cannot be reckoned, nor numbred. No more, anſwered they, can the parts of the Univerſe; for God's Creation, being an Infinite action, as proceeding from an Infinite Power, could not reſt upon

upon a finite number of Creatures, were it never ſo great. But leaving the myſtery of numbers, proceeded the Empereſs, Let me now deſire you to inform me, whether the Suns and Planets were generated by the Heavens, or Æthereal Matter? The Spirits anſwered, That the Stars and Planets were of the ſame matter which the Heavens, the Æther, and all other natural Creatures did conſiſt of; but whether they were generated by the Heavens or Æther, they could not tell: if they be, ſaid they, they are not like their Parents; for the Sun, Stars, and Planets, are more ſplendorous then the Æther, as alſo more ſolid and conſtant in their motions: But put the caſe, the Stars and Planets were generated by the Heavens, and the Æthereal Matter; the queſtion then would be, out of what theſe are generated or produced? if theſe be created out of nothing, and not generated out of ſomething, then it is probable the Sun, Stars and Planets are ſo too; nay, it is more probable of the Stars and Planets, then of the Heavens, or the fluid Æther, by reaſon the Stars and Planets ſeem to be further off from mortality, then the particular parts of the Æther; for no doubt but the parts of the Æthereal Matter alter into ſeveral forms, which we do not perceive of the Stars and Planets. The Empereſs asked further, whether they could give her information of the three principles of Man, according to the doctrine of the Platoniſts; as firſt of the Intellect, Spirit, or Divine Light:

Light: 2. Of the Soul of Man her ſelf: and 3. Of the Image of the Soul, that is, her vital operation on the body? The Spirits anſwered, that they did not underſtand theſe three diſtinctions; but that they ſeem'd to corporeal ſenſe and reaſon, as if they were three ſeveral bodies, or three ſeveral corporeal actions; however, ſaid they, they are intricate conceptions of irregular fancies. If you do not underſtand them, replied the Empereſs, hovv ſhall humane Creatures do then? Many, both of your modern and ancient Philoſophers, anſwered the Spirits, endeavour to go beyond ſenſe and reaſon, vvhich makes them commit abſurdities; for no corporeal Creature can go beyond ſenſe and reaſon; no not we Spirits, as long as vve are in our corporeal Vehicles. Then the Empereſs asked them, vvhether there vvere any Atheiſts in the World? The Spirits anſwered, that there vvere no more Atheiſts then vvhat Cabbaliſts make. She asked them further, Whether Spirits vvere of a globous or round Figure? They anſvvered, That Figure belonged to body, but they being immaterial had no figure. She asked again, Whether Spirits were not like Water or Fire? They anſwered, that Water and Fire was material, were it the pureſt and moſt refined that ever could be; nay, were it above the Heavens: But we are no more like Water or Fire, ſaid they, then we are like Earth; but our Vehicles are of ſeveral forms, figures and degrees

of ſubſtances. Then ſhe deſired to know, whether their Vehicles were made of Air? Yes, anſwered the Spirits, ſome of our Vehicles are of thin Air. Then I ſuppoſe, replied the Empereſs, That thoſe airy Vehicles, are your corporeal ſummerſuits. She asked further, whether the Spirits had not aſcending and deſcending motions, as well as other Creatures? They anſwered, That properly there was no aſcenſion or deſcenſion in Infinite Nature, but onely in relation to particular parts; and as for us Spirits, ſaid they, we can neither aſcend nor deſcend without corporeal Vehicles; nor can our Vehicles aſcend or deſcend, but according to their ſeveral ſhapes and figures, for there can be no motion without body. The Empereſs asked them further, whether there was not a World of Spirits, as well as there is of material Creatures? No, anſwered they; for the word World implies a quantity or multitude of corporeal Creatures, but we being Immaterial, can make no world of Spirits. Then ſhe deſired to be informed when Spirits were made? We do not know, anſwered they, how and when we were made, nor are we much inquiſitive after it; nay, if we did, it would be no benefit, neither for us, nor for you mortals to know it. The Empereſs replied, That Cabbaliſts and Divine Philoſophers ſaid, mens rational Souls were Immaterial, and ſtood as much in need of corporeal Vehicles, as Spirits did. If this be ſo, anſwered the Spirits, then you are Hermaphrodites of Nature;

Nature ; but your Cabbaliſts are miſtaken, for they take the pureſt and ſubtilleſt parts of Matter for Immaterial Spirits. Then the Empereſs asked, when the ſouls of Mortals went out of their bodies, whether they went to Heaven or Hell, or whether they remained in airy Vehicles ? God's Juſtice and Mercy, anſwered they, is perfect, and not imperfect ; but if you mortals will have Vehicles for your Souls, and a place that is between Heaven and Hell, it muſt be Purgatory, which is a place of Purification, for which action Fire is more proper then Air, and ſo the Vehicles of thoſe ſouls that are in Purgatory cannot be airy, but fiery ; and after this rate there can be but four places for humane ſouls to be in, *viz.* Heaven, Hell, Purgatory, and this World ; but as for Vehicles, they are but fancies, not real truths. Then the Empereſs asked them, where Heaven and Hell was ? Your Saviour Chriſt, anſwered the Spirits, has informed you, that there is Heaven and Hell, but he did not tell you what, nor where they are ; wherefore it is too great a preſumption for you Mortals to inquire after it ; if you do but ſtrive to get into Heaven, it is enough, though you do not know where or what it is, for it is beyond your knowledg and underſtanding. I am ſatisfied, replied the Empereſs, and asked further, whether there were any figures or characters in the Soul ? They anſwered, where there was no body, there could be no figure. Then ſhe asked them, whether Spirits could be naked ?

and

and whether they were of a dark, or a light colour? As for our nakedneſs, it is a very odd queſtion, anſwered the Spirits; and we do not know what you mean by a naked Spirit; for you judg of us as of corporeal Creatures; and as for Colour, ſaid they, it is according to our Vehicles; for Colour belongs to Body, and as there is no Body that is colourleſs, ſo there is no Colour that is bodileſs. Then the Empereſs deſired to be informed, whether all ſouls were made at the firſt Creation of the World? We know no more, anſwered the Spirits, of the origine of humane ſouls, then we know of our ſelves. She asked further, whether humane bodies were not burthenſome to humane ſouls? They anſwered, That bodies made Souls active, as giving them motion; and if action was troubleſome to ſouls, then bodies were ſo too. She asked again, whether ſouls did chuſe bodies? They anſwered, That Platonicks believed, the ſouls of Lovers lived in the bodies of their Beloved; but ſurely, ſaid they, if there be a multitude of ſouls in a world of Matter, they cannot miſs bodies; for as ſoon as a ſoul is parted from one body, it enters into another; and ſouls having no motion of themſelves, muſt of neceſsity be cloathed or imbodied with the next parts of Matter. If this be ſo, replied the Empereſs, then I pray inform me, whether all matter be ſoulified? The Spirits anſwered, They could not exactly tell that; but if it was true, that Matter had no other

other motion but what came from a ſpiritual power, and that all matter was moving, then no ſoul could quit a body, but ſhe muſt of neceſsity enter into another ſoulified body, and then there would be two immaterial ſubſtances in one body. The Empereſs asked, whether it was not poſsible that there could be two ſouls in one body? As for immaterial ſouls, anſwered the Spirits, it is impoſsible; for there cannot be two immaterials in one inanimate body, by reaſon they want parts, and place, being bodileſs; but there may be numerous material ſouls in one compoſed body, by reaſon every material part has a material natural ſoul; for Nature is but one Infinite ſelf-moving, living and ſelf-knowing body, conſiſting of the three degrees of inanimate, ſenſitive and rational Matter, ſo intermixt together, that no part of Nature, were it an Atome, can be without any of theſe three degrees; the ſenſitive is the life, the rational the ſoul, and the inanimate part, the body of Infinite Nature. The Empereſs was very well ſatisfied with this anſwer, and asked further, whether ſouls did not give life to bodies? No, anſwered they; but Spirits and Divine Souls have a life of their own, which is not partable, being purer then a natural life; for Spirits are incorporeal, and conſequently individable. But when the Soul is in its Vehicle, ſaid the Empereſs, then me thinks ſhe is like the Sun, and the Vehicle like the Moon. No, anſwered they, but the Vehicle is like

the Sun, and the Soul like the Moon; for the Soul hath motion from the Body, as the Moon has light from the Sun. Then the Empereſs asked the Spirits, whether it was an evil Spirit that tempted *Eve*, and brought all the miſchiefs upon Mankind, or whether it was the Serpent? They anſwered, That Spirits could not commit actual evils. The Empereſs ſaid they might do it by perſwaſions. They anſwered, That Perſwaſions were actions; but the Empereſs not being contented with this anſwer, asked whether there was not a ſupernatural Evil? The Spirits anſwered, That there was a ſupernatural Good, which was God; but they knew of no ſupernatural Evil that was equal to God. Then ſhe deſired to know, whether Evil Spirits were reckoned amongſt the Beaſts of the Field? They anſwer'd, That many Beaſts of the field were harmleſs Creatures, and very ſerviceable for Man's uſe; and though ſome were accounted fierce and cruel, yet did they exerciſe their cruelty upon other Creatures, for the moſt part, to no other end, but to get themſelves food, and to ſatisfie their natural appetite; but certainly, ſaid they, you men are more cruel to one another, then evil Spirits are to you; and as for their habitations in deſolate places, we having no communion with them, can give you no certain account thereof. But what do you think, ſaid the Empereſs, of Good Spirits? may not they be compared to the Fowls of the Air? They anſwered, There were many cruel and ravenous

ravenous Fowls as well in the Air, as there were fierce and cruel Beaſts on Earth; ſo that the good are always mixt with the bad. She asked further, whether the fiery Vehicles were a Heaven, or a Hell, or at leaſt a Purgatory to the Souls? They anſwered, That if the Souls were immaterial, they could not burn, and then fire would do them no harm; and though Hell was believed to be an undecaying and unquenchable fire, yet Heaven was no fire. The Empereſs replied, That Heaven was a Light. Yes, ſaidthey, but not a fiery Light. Then ſhe asked, whether the different ſhapes and ſorts of Vehicles, made the Souls and other Immaterial Spirits, miſerable, or bleſſed? The Vehicles, anſwered they, make them neither better, nor worſe; for though ſome Vehicles ſometimes may have power over others, yet theſe by turns may get ſome power again over them, according to the ſeveral advantages and diſadvantages of particular natural parts. The Empereſs asked further, whether animal life came out of the ſpiritual World, and did return thither again? The Spirits anſwered, they could not exactly tell; but if it were ſo, then certainly animal lives muſt leave their bodies behind them, otherwiſe the bodies would make the ſpiritual World a mixt World, that is, partly material, and partly immaterial; but the Truth is, ſaid they, Spirits being immaterial, cannot properly make a World; for a World belongs to material, not to immaterial Creatures. If this be ſo, replied the Empereſs,

pereſs, then certainly there can be no world of lives and forms without matter? No, anſwered the Spirits, nor a world of Matter without lives and forms; for natural lives and forms cannot be immaterial, no more then Matter can be immovable. And therefore natural lives, forms and matter, are inſeparable. Then the Empereſs asked, whether the firſt Man did feed on the beſt ſorts of the fruits of the Earth, and the beaſts on the worſt? The Spirits anſwered, That unleſs the beaſts of the field were barred out of manured fields and gardens, they would pick and chuſe the beſt fruits as well as men; and you may plainly obſerve it, ſaid they, in Squirrels and Monkies, how they are the beſt chuſers of Nuts and Apples, and how Birds do pick and feed on the moſt delicious fruits, and Worms on the beſt roots, and moſt ſavoury herbs; by which you may ſee, that thoſe Creatures live and feed better then men do, except you will ſay, that artificial Cookery is better and more wholeſom then the natural. Again, the Empereſs asked, whether the firſt Man gave names to all the ſeveral ſorts of Fiſhes in the Sea, and freſh waters? No, anſwered the Spirits, for he was an Earthly, and not a watery Creature, and therefore could not know the ſeveral ſorts of Fiſhes. Why, replied the Empereſs, he was no more an airy Creature then he was a watery one, and yet he gave names to the ſeveral ſorts of Fowls and Birds of the Air. Fowls anſwered they, are partly Airy, and partly

partly Earthly Creatures, not onely becauſe they reſemble Beaſts and Men in their fleſh, but becauſe their reſt and dwelling-places are on Earth; for they build their neſts, lay their eggs, and hatch their young, not in the Air, but on the Earth. Then ſhe asked, Whether the firſt Man did give names to all the various ſorts of Creatures that live on the Earth? Yes, anſwered they, to all thoſe that were preſented to him, or he had knowledg of, that is, to all the prime ſorts; but not to every particular; for of Mankind, ſaid they, there were but two at firſt, and as they did encreaſe, ſo did their names. But, ſaid the Empereſs, who gave the names to the ſeveral ſorts of Fiſh? The poſterity of Mankind, anſwered they. Then ſhe enquired, Whether there were no more kinds of Creatures now, then at the firſt Creation? They anſwered, That there were no more nor fewer kinds of Creatures then there are now; but there were, without queſtion, more particular ſorts of Creatures now, then there were then. She asked again, Whether all thoſe Creatures that were in Paradiſe, were alſo in *Noah*'s Ark? They anſwered, That the principal kinds had been there, but not all the particulars. Then ſhe would fain know, how it came, that both Spirits and Men did fall from a bleſſed into ſo miſerable a ſtate and condition they are now in. The Spirits anſwered, By diſobedience. The Empereſs asked, Whence this diſobedient ſin did proceed? But the Spirits deſired the Empereſs not to

ask them any ſuch queſtions, becauſe they went beyond their knowledg. Then ſhe begg'd the *Spirits* to pardon her preſumption; for, ſaid ſhe, It is the nature of Mankind to be inquiſitive. Natural deſire of knowledg, anſwered the *Spirits*, is not blameable, ſo you do not go beyond what your natural reaſon can comprehend. Then I'le ask no more, ſaid the Empereſs, for fear I ſhould commit ſome error; but one thing I cannot but aquaint you withal: What is that, ſaid the Spirits? I have a great deſire, anſwered the Empereſs, to make a Cabbala. What kind of Cabbala asked the Spirits? The Empereſs anſwered, The Jews Cabbala. No ſooner had the Empereſs declared her Mind, but the Spirits immediately diſappeared out of her ſight; which ſtartled the Empereſs ſo much, that ſhe fell into a Trance, wherein ſhe lay for ſome while; at laſt being come to her ſelf again, ſhe grew very ſtudious, and conſidering with her ſelf what might be the cauſe of this ſtrange diſaſter, conceived at firſt, that perhaps the Spirits were tired with hearing and giving anſwers to her queſtions; but thinking by her ſelf, that Spirits could not be tired, ſhe imagined that this was not the true cauſe of their diſappearing, till after diverſe debates with her own thoughts, ſhe did verily believe that the Spirits had committed ſome fault in their anſwers, and that for their puniſhment they were condemned to the loweſt and darkeſt Vehicles. This belief was ſo fixt in her mind, that it put her into a very

very Melancholick humor; and then ſhe ſent both for her Fly- and Worm-men, and declared to them the cauſe of her ſadneſs. 'Tis not ſo much, ſaid ſhe, the vaniſhing of thoſe Spirits that makes me Melancholick, but that I ſhould be the cauſe of their miſerable condition, and that thoſe harmleſs Spirits ſhould, for my ſake, ſink down into the black and dark abyſs of the Earth. The Worm-men comforted the Empereſs, telling her, that the Earth was not ſo horrid a dwelling, as ſhe did imagine; for, ſaid they, not onely all Minerals and Vegetables, but ſeveral ſorts of Animals can witneſs, that the Earth is a warm, fruitful, quiet, ſafe and happy habitation; and though they want the light of the Sun, yet are they not in dark, but there is light even within the Earth, by which thoſe Creatures do ſee that dwell therein. This relation ſetled her Majeſties mind a little; but yet ſhe being deſirous to know the Truth, where, and in what condition thoſe Spirits were, commanded both the Fly- and Worm-men to uſe all labour and induſtry to find them out, whereupon the Worm-men ſtraight deſcended into the Earth, and the Fly-men aſcended into the Air. After ſome ſhort time, the Worm-men returned, and told the Empereſs, that when they went into the Earth, they inquired of all the Creatures they met withal, whether none of them had perceived ſuch or ſuch Spirits, until at laſt coming to the very Center of the Earth, they were truly informed, that thoſe Spirits had ſtayed ſome time

time there, but at laſt were gone to the Antipodes on the other ſide of the Terreſtrial Globe, diametrically oppoſite to theirs. The Fly-men ſeconded the Worm-men, aſſuring her Majeſty, that their relation was very true; for, ſaid they, we have rounded the Earth, and juſt when we came to the Antipodes, we met thoſe Spirits in a very good condition, and acquainted them that your Majeſty was very much troubled at their ſudden departure, and fear'd they ſhould be buried in the darkneſs of the Earth: whereupon the Spirits anſwered us, that they were ſorry for having occaſioned ſuch ſadneſs and trouble in your Majeſty; and deſired us to tell your Majeſty, that they feared no darkneſs; for their Vehicles were of ſuch a ſort of ſubſtance as Cats-eyes, Glow-worms tails, and rotten wood, carrying their light along with them; and that they were ready to do your Majeſty what ſervice they could, in making your Cabbala. At which Relation the Empereſs was exceedingly glad, and rewarded both her Fly- and Worm-men bountifully.

After ſome time, when the Spirits had refreſhed themſelves in their own Vehicles, they ſent one of their nimbleſt Spirits, to ask the Empereſs, whether ſhe would have a Scribe, or whether ſhe would write the Cabbala her ſelf? The Empereſs received the profer which they made her, with all civility; and told him, that ſhe deſired a Spiritual Scribe. The Spirit anſwered, that they could dictate, but not write, except

except they put on a hand or arm, or elſe the whole body of Man. The Empereſs replied, How can Spirits arm themſelves with gantlets of fleſh? As well, anſwered he, as Man can arm himſelf with a gantlet of ſteel. If it be ſo, ſaid the Empereſs, then I will have a Scribe. Then the Spirit asked her, whether ſhe would have the Soul of a living or a dead Man? Why, ſaid the Empereſs, can the Soul quit a living body, and wander or travel abroad? Yes, anſwered he, for according to *Plato's* Doctrine, there is a converſation of Souls, and the Souls of Lovers live in the bodies of their Beloved. Then I will have, anſwered ſhe, the Soul of ſome ancient famous Writer, either of *Ariſtotle, Pythagoras, Plato, Epicurus*, or the like. The Spirit ſaid, That thoſe famous men were very learned, ſubtile, and ingenious Writers, but they were ſo wedded to their own opinions, that they would never have the patience to be Scribes. Then, ſaid ſhe, I'le have the Soul of one of the moſt famous modern Writers, as either of *Galileo, Gaſſendus, Des Cartes, Helmont, Hobbes, H. More, &c.* The Spirit anſwered, That they were fine ingenious Writers, but yet ſo ſelf-conceited, that they would ſcorn to be Scribes to a Woman. But, ſaid he, there's a Lady, the *Ducheſs* of *Newcaſtle*, which although ſhe is not one of the moſt learned, eloquent, witty and ingenious, yet is ſhe a plain and rational Writer, for the principle of her Writings, is Senſe and Reaſon, and

ſhe will without queſtion, be ready to do you all the ſervice ſhe can. The Lady then, ſaid the Empereſs, will I chuſe for my ſcribe, neither will the Emperor have reaſon to be jealous, ſhe being one of my own ſex. In truth, ſaid the Spirit, Husbands have reaſon to be jealous of Platonick Lovers, for they are very dangerous, as being not onely very intimate and cloſe, but ſubtil and inſinuating. You ſay well, replied the Empereſs; wherefore I pray ſend me the *Ducheſs* of *Newcaſtle's* Soul; which the Spirit did; and after ſhe came to wait on the Empereſs, at her firſt arrival the Empereſs imbraced and ſaluted her with a ſpiritual kiſs; then ſhe asked her whether ſhe could write? Yes, anſwered the *Ducheſs's* Soul, but not ſo intelligibly that any Reader whatſoever may underſtand it, unleſs he be taught to know my Characters; for my Letters are rather like Characters, then well-formed Letters, Said the Empereſs, you were recommended to me by an honeſt and ingenious Spirit. Surely, anſwered the Ducheſs, the Spirit is ignorant of my hand-writing. The truth is, ſaid the Empereſs, he did not mention your hand-writing; but he informed me, that you writ ſenſe and reaſon, and if you can but write ſo, that any of my Secretaries may learn your hand, they ſhall write it out fair and intelligible. The Ducheſs anſwered, That ſhe queſtioned not but it might eaſily be learned in a ſhort time. But, ſaid ſhe to the Empereſs, What is it that your Majeſty would have written. She anſwered, The Jews

Cabbala.

Cabbala. Then your onely way for that is, ſaid the Ducheſs, to have the Soul of ſome famous Jew; nay, if your Majeſty pleaſe, I ſcruple not, but you may as eaſily have the ſoul of *Moſes*, as of any other. That cannot be, replied the Empereſs, for no mortal knows where *Moſes* is. But, ſaid the Ducheſs, humane Souls are immortal; however, if this be too difficult to be obtained, you may have the Soul of one of the chief Rabbies or Sages of the Tribe of *Levi*, who will truly inſtruct you in that myſtery; when as, otherwiſe, your Majeſty will be apt to miſtake, and a thouſand to one, but commit groſs errors. No, ſaid the Empereſs, for I ſhall be inſtructed by Spirits. Alas! ſaid the Ducheſs, Spirits are as ignorant as Mortals in many caſes; for no created Spirits have a general or abſolute knowledg, nor can they know the Thoughts of Men, much leſs the Myſteries of the great Creator, unleſs he be pleaſed to inſpire into them the gift of Divine Knowledg. Then, I pray, ſaid the Empereſs, let me have your counſel in this caſe. The Ducheſs anſwered, If your Majeſty will be pleaſed to hearken to my advice, I would deſire you to let that work alone; for it will be of no advantage either to you, or your people, unleſs you were of the Jews Religion; nay, if you were, the vulgar interpretation of the holy Scripture would be more inſtructive, and more eaſily believed, then your myſtical way of interpreting it; for had it been better and more advantagious for the ſalvation of the Jews, ſurely

ſurely *Moſes* would have ſaved after ages that labour by his own explanation, he being not onely a wiſe, but a very honeſt, zealous and religious Man: Wherefore the beſt way, ſaid ſhe, is to believe with the generality the literal ſenſe of the Scripture, and not to make interpretations every one according to his own fancy, but to leave that work for the Learned, or thoſe that have nothing elſe to do; Neither do I think, ſaid ſhe, that God will damn thoſe that are ignorant therein, or ſuffer them to be loſt for want of a myſtical interpretation of the *Scripture*. Then, ſaid the Empereſs, I'le leave the *Scripture*, and make a Philoſophical Cabbala. The Ducheſs told her, That ſenſe and reaſon would inſtruct her of Nature as much as could be known; and as for numbers, they were infinite, but to add non-ſenſe to infinite, would breed a confuſion, eſpecially in humane underſtanding. Then, replied the Empereſs, I'le make a moral Cabbala. The onely thing, anſwered the Ducheſs, in morality, is but to fear God, and to love his Neighbour, and this needs no further interpretation. But then I'le make a Political Cabbala, ſaid the Empereſs. The Ducheſs anſwered, That the chief and onely ground in Government, was but Reward and Puniſhment, and required no further Cabbala; But, ſaid ſhe, If your Majeſty were reſolved to make a Cabbala, I would adviſe you, rather to make a Poetical or Romancical Cabbala, wherein you can uſe Metaphors, Allegories,

Allegories, *Similitudes, &c.* and interpret them as you pleaſe. With that the Empereſs thank'd the Ducheſs, and embracing her ſoul, told her ſhe would take her Counſel: ſhe made her alſo her favourite, and kept her ſometime in that world, and by this means the Ducheſs came to know and give this Relation of all that paſſed in that rich, populous, and happy world; and after ſome time the Empereſs gave her leave to return to her Husband and Kindred into her native world, but upon condition, that her ſoul ſhould viſit her now and then; which ſhe did, and truly their meeting did produce ſuch an intimate friendſhip between them, that they became Platonick Lovers, although they were both Females.

One time, when the Ducheſs her *S*oul was with the Empereſs, ſhe ſeem'd to be very ſad and melancholy; at which the *E*mpereſs was very much troubled, and asked her the reaſon of her melancholick humour? Truly ſaid the Ducheſs to the Empereſs (for between dear friends there's no concealment, they being like ſeveral parts of one united body) my Melancholy proceeds from an extreme ambition. The Empereſs asked, what the height of her ambition was? The Ducheſs anſwered, That neither ſhe her ſelf, nor no Creature in the World was able to know either the height, depth or breadth of her ambition; but ſaid ſhe, my preſent deſire is, that I would be a great Princeſs. The Empereſs replied, ſo you are; for you

are a Princeſs of the fourth or fifth degree; for a Duke or Ducheſs is the higheſt title or honour that a ſubject can arrive to, as being the next to a Kings Title; and as for the name of a Prince or Princeſs, it belongs to all that are adopted to the Crown; ſo that thoſe that can add a Crown to their arms, are Princes, and therefore a *Duke* is a Title above a *Prince*; for example, the *Duke* of *Savoy*, the *Duke* of *Florence*, the *Duke* of *Lorraine*, as alſo Kings Brothers are not called by the name of Princes, but Dukes, this being the higher Title. 'Tis true, anſwered the Ducheſs, unleſs it be Kings eldeſt Sons, and they are created Princes. Yes, replied the Empereſs, but no Soverain does make a ſubject equal to himſelf, ſuch as Kings eldeſt ſons partly are: And although ſome Dukes be ſoveraign, yet I never heard that a Prince by his Title is ſoveraign, by reaſon the Title of a Prince is more a Title of Honour, then of Soverainty; for, as I ſaid before, it belongs to all that are adopted to the Crown. Well, ſaid the Ducheſs, ſetting aſide this diſpute, my ambition is, that I would fain be as you are, that is, an Empereſs of a World, and I ſhall never be at quiet until I be one. I love you ſo well, replied the Empereſs, that I wiſh with all my ſoul, you had the fruition of your ambitious deſire, and I ſhall not fail to give you my beſt advice how to accompliſh it; the beſt informers are the Immaterial Spirits, and they'l ſoon tell you, whether it be poſsible to obtain your wiſh. But, ſaid the Ducheſs, I have little acquaintance

acquaintance with them, for I never knew any before the time you ſent for me. They know you, replied the Empereſs; for they told me of you, and were the means and inſtrument of your coming hither: Wherefore I'le confer with them, and enquire whether there be not another World, whereof you may be Empereſs as well as I am of this? No ſooner had the Empereſs ſaid this, but ſome Immaterial Spirits came to viſit her, of whom ſhe inquired, whether there were but three Worlds in all, to wit, the Blazing-world where ſhe was in, the World which ſhe came from, and the World where the Ducheſs lived? The Spirits anſwered, That there were more numerous Worlds then the Stars which appeared in theſe three mentioned Worlds. Then the Empereſs asked, whether it was not poſsible, that her deareſt friend the Ducheſs of *Newcaſtle*, might be Empereſs of one of them? Although there be numerous, nay, infinite Worlds, anſwered the Spirits, yet none is without Government. But is none of theſe Worlds ſo weak, ſaid ſhe, that it may be ſurpriſed or conquered? The Spirits anſwered, That *Lucian's* World of Lights, had been for ſome time in a ſnuff, but of late years one *Helmont* had got it, who ſince he was Emperour of it, had ſo ſtrengthened the Immortal parts thereof with mortal out-works, as it was for the preſent impregnable. Said the Empereſs, If there be ſuch an Infinite number of Worlds, I am ſure, not onely my friend, the Ducheſs, but any other

other might obtain one. Yes, anſwered the Spirits, if thoſe Worlds were uninhabited; but they are as populous as this, your Majeſty governs. Why, ſaid the Empereſs, it is not impoſsible to conquer a World. No, anſwered the Spirits, but, for the moſt part, Conquerers ſeldom enjoy their conqueſt, for they being more feared then loved, moſt commonly come to an untimely end. If you will but direct me, ſaid the Ducheſs to the Spirits, which World is eaſieſt to be conquered, her Majeſty will aſsiſt me with means, and I will truſt to Fate and Fortune; for I had rather die in the adventure of noble atchievements, then live in obſcure and ſluggiſh ſecurity; ſince by the one, I may live in a glorious Fame, and by the other I am buried in oblivion. The Spirits anſwered, That the lives of Fame were like other lives; for ſome laſted long, and ſome died ſoon. 'Tis true, ſaid the Ducheſs; but yet the ſhorteſt-lived Fame laſts longer then the longeſt life of Man. But, replied the Spirits, if occaſion does not ſerve you, you muſt content your ſelf to live without ſuch atchievements that may gain you a Fame: But we wonder, proceeded the Spirits, that you deſire to be Empereſs of a Terreſtrial World, when as you can create your ſelf a Celeſtial World if you pleaſe. What, ſaid the Empereſs, can any Mortal be a Creator? Yes, anſwered the Spirits; for every humane Creature can create an Immaterial World fully inhabited by immaterial Creatures, and

populous

populous of immaterial ſubjects, ſuch as we are, and all this within the compaſs of the head or ſcull; nay, not onely ſo, but he may create a World of what faſhion and Government he will, and give the Creatures thereof ſuch motions, figures, forms, colours, perceptions, *&c.* as he pleaſes, and make Whirl-pools, Lights, Preſſures and Reactions, *&c.* as he thinks beſt; nay, he may make a World full of Veins, Muſcles, and Nerves, and all theſe to move by one jolt or ſtroke: alſo he may alter that world as often as he pleaſes, or change it from a natural world, to an artificial; he may make a world of Ideas, a world of Atomes, a world of Lights, or whatſoever his fancy leads him to. And ſince it is in your power to create ſuch a world, What need you to venture life, reputation and tranquility, to conquer a groſs material world? For you can enjoy no more of a material world then a particular Creature is able to enjoy, which is but a ſmall part, conſidering the compaſs of ſuch a world; and you may plainly obſerve it by your friend the Empereſs here, which although ſhe poſſeſſes a whole world, yet enjoys ſhe but a part thereof; neither is ſhe ſo much acquainted with it, that ſhe knows all the places, Countries and Dominions ſhe Governs. The truth is, a Soveraign Monarch has the general trouble; but the Subjects enjoy all the delights and pleaſures in parts; for it is impoſſible, that a Kingdom, nay, a County ſhould be injoyed by one perſon at once, except he take the pains

to travel into every part, and endure the inconveniencies of going from one place to another; wherefore, ſince glory, delight and pleaſure lives but in other mens opinions, and can neither add tranquility to your mind, nor give eaſe to your body, why ſhould you deſire to be Empereſs of a material world, and be troubled with the cares that attend Government? when as by creating a world within your ſelf, you may enjoy all both in whole and in parts, without controle or oppoſition, and may make what world you pleaſe, and alter it when you pleaſe, and enjoy as much pleaſure and delight as a world can afford you? You have converted me, ſaid the Ducheſs to the Spirits, from my ambitious deſire; wherefore I'le take your advice, reject and deſpiſe all the worlds without me, and create a world of my own. The Empereſs ſaid, If I do make ſuch a world, then I ſhall be Miſtreſs of two worlds, one within, and the other without me. That your Majeſty may, ſaid the Spirits; and ſo left theſe two Ladies to create two worlds within themſelves: who did alſo part from each other, until ſuch time as they had brought their worlds to perfection. The Ducheſs of *Newcaſtle* was moſt earneſt and induſtrious to make her world, becauſe ſhe had none at preſent; and firſt ſhe reſolved to frame it according to the opinion of *Thales*, but ſhe found her ſelf ſo much troubled with Dæmons, that they would not ſuffer her to take her own will, but forced her to obey their orders

and

and commands; which ſhe being unwilling to do, left off from making a world that way, and began to frame one according to *Pythagoras's* Doctrine; but in the Creation thereof, ſhe was ſo puzled with numbers, how to order and compoſe the ſeveral parts, that ſhe having no skill in Arithmetick, was forced alſo to deſiſt from the making of that world. Then ſhe intended to create a world according to the opinion of *Plato*; but ſhe found more trouble and difficulty in that, then in the two former; for the numerous Ideas having no other motion but what was derived from her mind, whence they did flow and iſſue out, made it a far harder buſineſs to her, to impart motion to them, then Puppit-players have in giving motion to every ſeveral Puppit; in ſo much, that her patience was not able to endure the trouble which thoſe Ideas cauſed her; wherefore ſhe annihilated alſo that world, and was reſolved to make one according to the Opinion of *Epicurus*; which ſhe had no ſooner begun, but the infinite Atomes made ſuch a miſt, that it quite blinded the perception of her mind; neither was ſhe able to make a *Vacuum* as a receptacle for thoſe Atomes, or a place which they might retire into; ſo that partly for the want of it, and of a good order and method, the confuſion of thoſe Atomes produced ſuch ſtrange and monſtrous figures, as did more affright then delight her, and cauſed ſuch a Chaos in her mind, as has almoſt diſſolved it. At laſt, having with much ado cleanſed and cleared her mind of theſe

duſty

duſty and miſty particles, ſhe endeavoured to create a World according to *Ariſtotle's* Opinion; but remembring that her mind, as moſt of the Learned hold it, was Immaterial, and that according to *Ariſtotle's* Principle, out of Nothing, Nothing could be made; ſhe was forced alſo to deſiſt from that work, and then ſhe fully reſolved, not to take any more patterns from the Ancient Philoſophers, but to follow the Opinions of the Moderns; and to that end, ſhe endeavoured to make a World according to *Des Cartes* Opinion; but when ſhe had made the Æthereal Globules, and ſet them a moving by a ſtrong and lively imagination, her mind became ſo dizzie with their extraordinary ſwift turning round, that it almoſt put her into a ſwoon; for her thoughts, by their conſtant tottering, did ſo ſtagger, as if they had all been drunk: wherefore ſhe diſſolved that World, and began to make another, according to *Hobbs's* Opinion; but when all the parts of this Imaginary World came to preſs and drive each other, they ſeemed like a company of Wolves that worry Sheep, or like ſo many Dogs that hunt after Hares; and when ſhe found a reaction equal to thoſe preſſures, her mind was ſo ſqueeſed together, that her thoughts could neither move forward nor backward, which cauſed ſuch an horrible pain in her head, that although ſhe had diſſolved that World, yet ſhe could not, without much difficulty, ſettle her mind, and free it from that pain which thoſe preſſures and reactions had cauſed in it.

At

At laſt, when the Ducheſs ſaw that no patterns would do her any good in the framing of her World; ſhe was reſolved to make a World of her own invention, and this World was compoſed of ſenſitive and rational ſelf-moving Matter; indeed, it was compoſed onely of the rational, which is the ſubtileſt and pureſt degree of Matter; for as the ſenſitive did move and act both to the perceptions and conſiſtency of the body, ſo this degree of Matter at the ſame point of time (for though the degrees are mixt, yet the ſeveral parts may move ſeveral ways at one time) did move to the Creation of the Imaginary World; which World after it was made, appear'd ſo curious and full of variety, ſo well order'd and wiſely govern'd, that it cannot poſsibly be expreſſed by words, nor the delight and pleaſure which the Ducheſs took in making this world of her own.

In the mean time the Empereſs was alſo making and diſſolving ſeveral worlds in her own mind, and was ſo puzled, that ſhe could not ſettle in any of them; wherefore ſhe ſent for the Ducheſs, who being ready to wait on the Empereſs, carried her beloved world along with her, and invited the Empereſs's Soul to obſerve the frame, order and Government of it. Her Majeſty was ſo raviſhed with the perception of it, that her ſoul deſired to live in the Ducheſs's World; but the Ducheſs adviſed her to make ſuch another World in her own mind; for, ſaid ſhe, your Majeſties mind is

full of rational corporeal motions, and the rational motions of my mind ſhall aſſiſt you by the help of ſenſitive expreſſions, with the beſt inſtructions they are able to give you.

The Empereſs being thus perſwaded by the Ducheſs to make an imaginary World of her own, followed her advice; and after ſhe had quite finiſhed it, and framed all kinds of Creatures proper and uſeful for it, ſtrengthened it with good Laws, and beautified it with Arts and Sciences; having nothing elſe to do, unleſs ſhe did diſſolve her imaginary world, or made ſome alterations in the Blazing-world, ſhe lived in, which yet ſhe could hardly do, by reaſon it was ſo well ordered that it could not be mended; for it was governed without ſecret and deceiving Policy; neither was there any ambition, factions, malicious detractions, civil diſſenſions, or home-bred quarrels, diviſions in Religion, forreign Wars, *&c.* but all the people lived in a peaceful ſociety, united Tranquillity, and Religious Conformity; ſhe was deſirous to ſee the world the Ducheſs came from, and obſerve therein the ſeveral ſoveraign Governments, Laws and Cuſtoms of ſeveral Nations. The Ducheſs uſed all the means ſhe could, to divert her from that Journey, telling her, that the world ſhe came from, was very much diſturbed with factions, diviſions and wars; but the Empereſs would not be perſwaded from her deſign; and leſt the Emperour, or any of his ſubjects ſhould know of her travel, and

and obſtruct her deſign, ſhe ſent for ſome of the Spirits ſhe had formerly converſed withal, and inquired whether none of them could ſupply the place of her ſoul in her body at ſuch a time, when ſhe was gone to travel into another World? They anſwered, Yes, they could; for not onely one, ſaid they, but many Spirits may enter into your body, if you pleaſe. The Empereſs replied, ſhe deſired but one Spirit to be Vice-Roy of her body in the abſence of her Soul, but it muſt be an honeſt and ingenious Spirit; and if it was poſſible, a female Spirit. The Spirits told her, that there was no difference of Sexes amongſt them; but, ſaid they, we will chuſe an honeſt and ingenious Spirit, and ſuch a one as ſhall ſo reſemble your ſoul, that neither the Emperour, nor any of his ſubjects, although the moſt Divine, ſhall know whether it be your own ſoul, or not: which the Empereſs was very glad at, and after the Spirits were gone, asked the Ducheſs, how her body was ſupplied in the abſence of her ſoul? who anſwered Her Majeſty, That her body, in the abſence of her ſoul, was governed by her ſenſitive and rational corporeal motions. Thus thoſe two female ſouls travelled together as lightly as two thoughts into the Ducheſs her native World; and which is remarkable, in a moment viewed all the parts of it, and all the actions of all the Creatures therein, eſpecially did the Empereſs's ſoul take much notice of the ſeveral actions of humane Creatures in all the ſeveral Nations and

parts

parts of that World, and wonder'd that for all there were ſo many ſeveral Nations, Governments, Laws, Religions, Opinions, *&c.* they ſhould all yet ſo generally agree in being Ambitious, Proud, Self-conceited, Vain, Prodigal, Deceitful, Envious, Malicious, Unjuſt, Revengeful, Irreligious, Factious, *&c.* She did alſo admire, that not any particular State, Kingdom or Common-wealth, was contented with their own ſhares, but endeavoured to encroach upon their neighbours, and that their greateſt glory was in Plunder and Slaughter, and yet their victorie's leſs then their expenſes, and their loſſes more then their gains, but their being overcome in a manner their utter ruine. But that ſhe wonder'd moſt at, was, that they ſhould prize or value dirt more then mens lives, and vanity more then tranquillity; for the Emperor of a world, ſaid ſhe, injoys but a part, not the whole; ſo that his pleaſure conſiſts in the opinions of others. It is ſtrange to me, anſwered the Ducheſs, that you ſhould ſay thus, being your ſelf, an Empereſs of a World, and not onely of a world, but of a peaceable, quiet, and obedient world. 'Tis true, replied the Empereſs, but although it is a peaceable and obedient world, yet the Government thereof is rather a trouble, then a pleaſure; for order cannot be without induſtry, contrivance and direction; beſides, the Magnificent ſtate, that great Princes keep or ought to keep, is troubleſome. Then by your Majeſties diſcourſe, ſaid the Ducheſs, I perceive that the greateſt

greateſt happineſs in all Worlds conſiſt in Moderation: No doubt of it, replied the Empereſs; and after theſe two ſouls had viſited all the ſeveral places, Congregations and Aſſemblies both in Religion and State, the ſeveral Courts of Judicature, and the like, in ſeveral Nations, the Empereſs ſaid, That of all the Monarchs of the ſeveral parts of that World, ſhe had obſerved the Grand-Signior was the greateſt; for his word was a Law, and his power abſolute. But the Ducheſs pray'd the Empereſs to pardon her that ſhe was of another mind; for, ſaid ſhe, he cannot alter *Mahomets* Laws and Religion; ſo that the Law and Church do govern the Emperor, and not the Emperor them. But, replied the Empereſs, he has power in ſome particulars; as for example, to place and diſplace ſubjects in their particular Governments of Church and State, and having that, he has the Command both over Church and State, and none dares oppoſe him. 'Tis true, ſaid the Ducheſs; but if it pleaſes your Majeſty, we will go into that part of the world whence I came to wait on your Majeſty, and there you ſhall ſee as powerful a Monarch as the Grand-Signior; for though his Dominions are not of ſo large extent, yet they are much ſtronger, his Laws are eaſie and ſafe, and he governs ſo juſtly and wiſely, that his ſubjects are the happieſt people of all the Nations or parts of that world. This Monarch, ſaid the Empereſs, I have a great mind to ſee: Then they both

went, and in a ſhort time arrived into his Dominions; but coming into the Metropolitan City, the Empereſs's ſoul obſerved many Galants go into an houſe, and enquiring of the Ducheſs's ſoul, what houſe that was? She told her, It was one of the Theatres where Comedies and Tragedies were acted. The Empereſs asked, Whether they were real? No, ſaid the Ducheſs, They are feigned. Then the Empereſs deſired to enter into the Theatre, and when ſhe had ſeen the Play that was acted, the Ducheſs asked her how ſhe liked that Recreation? I like it very well, ſaid the Empereſs; but I obſerve, that the Actors make a better ſhow then the Spectators, and the Scenes a better then the Actors, and the Muſick and Dancing is more pleaſant and acceptable then the Play it ſelf; for I ſee, the Scenes ſtand for wit, the Dancing for humour, and the Muſick is the Chorus. I am ſorry, replied the Ducheſs, to hear your Majeſty ſay ſo; for if the Wits of this part of the world ſhould hear you, they would condemn you. What, ſaid the Empereſs, would they condemn me for preferring a natural face before a ſign-poſt, or a natural humour before an artificial dance, or Muſick before a true and profitable Relation? As for relation, replied the Ducheſs, our Poets defie and condemn it into a Chimney-corner, fitter for old Womens Tales, then Theatres. Why, ſaid the Empereſs, do not your Poets actions comply with their judgments? for their Plays are compoſed of old

ſtories,

ſtories, either of Greek or Roman, or ſome new-found World. The Ducheſs anſwered her Majeſty, that it was true, that all or moſt of their Plays were taken out of old Stories, but yet they had new actions, which being joined to old ſtrories, together with the addition of new Prologues, Scenes, Muſick and Dancing, made new Plays.

After this, both the Souls went to the Court, where all the Royal Family was together, attended by the chief of the Nobles of their Dominions, which made a very magnificent ſhow; and when the ſoul of the Empereſs viewed the King and Queen, ſhe ſeemed to be in amaze, which the Ducheſs's ſoul perceiving, asked the Empereſs how ſhe liked the King, the Queen, and all the Royal Race? She anſwered, that in all the Monarchs ſhe had ſeen in that World, ſhe had not found ſo much Majeſty and affability mixt ſo exactly together, that none did overſhadow or eclipſe the other; and as for the Queen, ſhe ſaid, that Vertue ſate Triumphant in her face, and Piety was dwelling in her heart, and that all the Royal Family ſeem'd to be endued with a Divine ſplendor: but when ſhe had heard the King diſcourſe, ſhe believ'd, that *Mercury* and *Apollo* had been his Celeſtial inſtructors; and my dear Lord and Husband, added the Ducheſs, has been his Earthly Governour. But after ſome ſhort ſtay in the Court, the Ducheſs's ſoul grew very Melancholy; the Empereſs asking the cauſe of her ſadneſs? She told her, that

ſhe

ſhe had an extreme deſire to converſe with the ſoul of her noble Lord and dear Husband, and that ſhe was impatient of a longer ſtay. The Empereſs deſired the Ducheſs to have but patience ſo long, until the King, the Queen, and the Royal Family were retired, and then ſhe would bear her company to her Lord and Husbands Soul, who at that time lived in the Country ſome 112 miles off; which ſhe did: and thus theſe two ſouls went towards thoſe parts of the Kingdom where the Duke of *Newcaſtle* was.

But one thing I forgot all this while, which is, That although thoughts are the natural language of ſouls, yet by reaſon ſouls cannot travel without Vehicles, they uſe ſuch language as the nature and propriety of their Vehicles require, and the Vehicles of thoſe two ſouls being made of the pureſt and fineſt ſort of air, and of a humane ſhape; this purity and fineneſs was the cauſe that they could neither be ſeen nor heard by any humane Creature; when as, had they been of ſome groſſer ſort of Air, the ſound of that Airs language would have been as perceptible as the blowing of *Zephyrus*.

And now to return to my former Story; when the Empereſs's and Ducheſs's Soul were travelling into *Nottingham*-ſhire, for that was the place where the Duke did reſide; paſsing through the forreſt of *Sherewood*, the Empereſs's ſoul was very much delighted with it, as being a dry, plain and woody place, very pleaſant

pleaſant to travel in both in Winter and Summer; for it is neither much dirty, nor duſty at no time: at laſt they arrived at *Welbeck*, a Houſe where the Duke dwell'd, ſurrounded all with Wood, ſo cloſe and full, that the Empereſs took great pleaſure and delight therein, and told the Ducheſs ſhe never had obſerved more wood in ſo little a compaſs in any part of the Kingdom ſhe had paſſed through; The truth is, ſaid ſhe, there ſeems to be more wood on the Seas, ſhe meaning the Ships, then on the Land. The Ducheſs told her, the reaſon was, that there had been a long Civil War in that Kingdom, in which moſt of the beſt Timber-trees and Principal Palaces were ruined and deſtroyed; and my dear Lord and Husband, ſaid ſhe, has loſt by it half his Woods, beſides many Houſes, Land, and moveable Goods; ſo that all the loſs out of his particular Eſtate, did amount to above half a Million of Pounds. I wiſh, ſaid the Empereſs, he had ſome of the Gold that is in the Blazing-world, to repair his loſſes. The Ducheſs moſt humbly thank'd her Imperial Majeſty for her kind wiſhes; but, ſaid ſhe, wiſhes will not repair his ruines: however, God has given my Noble Lord and Husband great Patience, by which he bears all his loſſes and misfortunes. At laſt, they enter'd into the Dukes Houſe, an habitation not ſo magnificent, as uſeful; and when the Empereſs ſaw it, Has the Duke, ſaid ſhe, no other houſe but this? Yes, anſwered the Ducheſs, ſome five miles from this place, he has a very

fine Caſtle, called *Boleſover*. That place then, ſaid the Empereſs, I deſire to ſee. Alas! replied the Ducheſs, it is but a naked houſe, and uncloath'd of all Furniture. However, ſaid the Empereſs, I may ſee the manner of its ſtructure and building. That you may, replied the Ducheſs: and as they were thus diſcourſing, the Duke came out of the Houſe into the Court, to ſee his Horſes of mannage; whom when the Ducheſs's ſoul perceived, ſhe was ſo overjoyed, that her aereal Vehicle became ſo ſplendorous, as if it had been enlightned by the Sun; by which we may perceive, that the paſſions of Souls or Spirits can alter their bodily Vehicles. Then theſe two Ladies Spirits went cloſe to him, but he could not perceive them; and after the Empereſs had obſerved the Art of Mannage, ſhe was much pleaſed with it, and commended it as a noble paſtime, and an exerciſe fit and proper for noble and heroick Perſons: But when the Duke was gone into the houſe again, thoſe two Souls followed him; where the Empereſs obſerving, that he went to the exerciſe of the Sword, and was ſuch an excellent and unparallell'd Maſter thereof, ſhe was as much pleaſed with that exerciſe, as ſhe was with the former: But the Ducheſs's ſoul being troubled, that her dear Lord and Husband uſed ſuch a violent exerciſe before meat, for fear of overheating himſelf, without any conſideration of the Empereſs's ſoul, left her aereal Vehicle, and entred into her Lord. The Empereſs's ſoul perceiving this, did the

the like : And then the Duke had three Souls in one Body ; and had there been but ſome ſuch Souls more, the Duke would have been like the Grand-Signior in his Seraglio, onely it would have been a Platonick Seraglio. But the Dukes ſoul being wiſe, honeſt, witty, complaiſant and noble, afforded ſuch delight and pleaſure to the Empereſs's ſoul by her converſation, that theſe two ſouls became enamoured of each other; which the Ducheſs's ſoul perceiving, grew jealous at firſt, but then conſidering that no Adultery could be committed amongſt Platonick Lovers, and that Platoniſm was Divine, as being derived from Divine *Plato*, caſt forth of her mind that Idea of Jealouſie. Then the Converſation of theſe three ſouls was ſo pleaſant, that it cannot be expreſſed; for the Dukes ſoul entertained the Empereſſes ſoul with Scenes, Songs, Muſick, witty Diſcourſes, pleaſant Recreations, and all kinds of harmleſs ſports; ſo that the time paſſed away faſter then they expected. At laſt, a Spirit came and told the Empereſs, that although neither the Emperour, nor any of his ſubjects knew that her ſoul was abſent; yet the Emperours ſoul was ſo ſad and melancholy, for want of his own beloved ſoul, that all the Imperial Court took notice of it. Wherefore he adviſed the Empereſs's Soul to return into the Blazing-world, into her own body ſhe left there ; which both the Dukes and Ducheſs's ſoul was very ſorry for, and wiſhed, that if it had been poſſible, the Empereſs's ſoul might have ſtayed a longer time

time with them; but ſeeing it could not be otherwiſe, they pacified themſelves: But before the Empereſs returned into the Blazing-world, the Ducheſs deſired a favour of her, to wit, that ſhe would be pleaſed to make an agreement between her Noble Lord, and Fortune. Why, ſaid the Empereſs, are they enemies? Yes, anſwered the Ducheſs, and they have been ſo ever ſince I have been his Wife; nay, I have heard my Lord ſay, that ſhe hath croſſed him in all things ever ſince he could remember. I am ſorry for that, replied the Empereſs, but I cannot diſcourſe with Fortune without the help of an Immaterial Spirit, and that cannot be done in this World, for I have no Fly- nor Bird-men here, to ſend into the region of the Air, where, for the moſt part, their habitations are. The Ducheſs ſaid, ſhe would intreat her Lord to ſend an Attorney or Lawyer, to plead her cauſe. Fortune will bribe them, replied the Empereſs, and ſo the Duke may chance to be caſt; Wherefore the beſt way will be for the Duke to chuſe a friend on his ſide, and let Fortune chuſe another, and try whether by this means it be poſsible to compoſe the difference. The Ducheſs ſaid, They will never come to an agreement, unleſs there be a Judg or Umpire to decide the Caſe. A Judg, replied the Empersſs, is eaſie to be had, but to get an Impartial Judg, is a thing ſo difficult, that I doubt we ſhall hardly find one; for there is none to be had neither in Nature, nor in Hell, but onely

from

from Heaven, and how to get ſuch a Divine and Celeſtial Judg, I cannot tell: Nevertheleſs, if you will go along with me into the Blazing-world, I'le try what may be done. 'Tis my duty, ſaid the Ducheſs, to wait on your Majeſty, and I ſhall moſt willingly do it, for I have no other intereſt to conſider. Then the Ducheſs ſpake to the Duke concerning the difference between him and Fortune, and how it was her deſire that they might be friends. The Duke anſwered, That for his part, he had always with great induſtry, ſought her friendſhip, but as yet he could never obtain it, for ſhe had always been his enemy: However, ſaid he, I'le try, and ſend my two friends, *Prudence* and *Honeſty*, to plead my cauſe. Then theſe two friends went with the Ducheſs and the Empereſs into the Blazing-world; (for it is to be obſerved, that they are ſomewhat like Spirits, becauſe they are immaterial, although their actions are corporeal:) and after their arrival there, when the Empereſs had refreſhed her ſelf, and rejoiced with the Emperor, ſhe ſent her Fly-men for ſome of the Spirits, and deſired their aſſiſtance, to compoſe the difference between *Fortune*, and the *Duke* of *Newcaſtle*. But they told her Majeſty, That Fortune was ſo inconſtant, that although ſhe would perhaps promiſe to hear their cauſe pleaded, yet it was a thouſand to one, but ſhe would never have the patience to do it: Nevertheleſs, upon Her Majeſties requeſt, they tried their utmoſt, and at laſt prevailed

with Fortune ſo far, that ſhe choſe *Folly*, and *Raſhneſs*, for her Friends, but they could not agree in chuſing a Judg; until at laſt, with much ado, they concluded, that *Truth* ſhould hear, and decide the cauſe. Thus all being prepared, and the time appointed, both the Empereſs's and Ducheſs's ſoul went to hear them plead; and when all the Immaterial company was met, *Fortune* ſtanding upon a Golden-Globe, made this following Speech:

Noble Friends, *We are met here to hear a Cauſe pleaded concerning the difference between the Duke of* Newcaſtle, *and my ſelf; and though I am willing upon the perſwaſions of the Ambaſſadors of the Empereſs, the Immaterial Spirits, to yield to it, yet it had been fit, the* Dukes *Soul ſhould be preſent alſo, to ſpeak for her ſelf; but ſince ſhe is not here, I ſhall declare my ſelf to his Wife, and his Friends, as alſo to my Friends, eſpecially the Empereſs, to whom I ſhall chiefly direct my Speech. Firſt, I deſire, your Imperial Majeſty may know, that this* Duke *who complains or exclaims ſo much againſt me, hath been always my enemy; for he has preferred* Honeſty *and* Prudence *before me, and ſlighted all my favours; nay, not onely thus, but he did fight againſt me, and preferred his Innocence before my Power. His friends* Honeſty *and* Prudence, *ſaid he moſt ſcornfully, are more to be regarded, then Inconſtant* Fortune, *who is onely a friend to Fools and Knaves; for which neglect and ſcorn, whether I have not juſt reaſon to be his enemy, your Majeſty may judg your ſelf.*

After

After Fortune had thus ended her Speech, the Ducheſs's Soul roſe from her ſeat, and ſpake to the Immaterial Aſſembly in this manner:

Noble Friends, *I think it fit, by your leave, to anſwer Lady Fortune in the behalf of my Noble Lord and Husband, ſince he is not here himſelf; and ſince you have heard her complaint concerning the choice my Lord made of his friends, and the neglect and diſreſpect he ſeemed to caſt upon her; give me leave to anſwer, that, firſt concerning the Choice of his Friends, He has proved himſelf a wiſe man in it; and as for the diſ-reſpect and rudeneſs, her Ladiſhip accuſes him of, I dare ſay, he is ſo much a Gentleman, that I am confident he would never ſlight, ſcorn or diſreſpect any of the Female Sex in all his life time; but was ſuch a ſervant and Champion for them, that he ventured Life and Eſtate in their ſervice; but being of an honeſt, as well as an honourable Nature, he could not truſt Fortune with that which he preferred above his life, which was his Reputation, by reaſon Fortune did not ſide with thoſe that were honeſt and honourable, but renounced them; and ſince he could not be of both ſides, he choſe to be of that which was agreeable both to his Conſcience, Nature and Education; for which choice Fortune did not onely declare her ſelf his open Enemy, but fought with him in ſeveral Battels; nay, many times, hand to hand; at laſt, ſhe being a Powerful Princeſs, and as ſome believe, a Deity, overcame him, and caſt him into a Baniſhment, where ſhe kept him in great miſery, ruined his Eſtate, and took away from him*

moſt

moſt of his Friends; nay, even when ſhe favoured many that were againſt her, ſhe ſtill frowned on him; all which he endured with the greateſt patience, and with that reſpect to Lady Fortune, that he did never in the leaſt endeavour to diſoblige any of her Favourites, but was onely ſorry that he, an honeſt man, could find no favour in her Court; and ſince he did never injure any of thoſe ſhe favoured, he neither was an enemy to her Ladiſhip, but gave her always that reſpect and worſhip which belonged to her power and dignity, and is ſtill ready at any time honeſtly and prudently to ſerve her; he onely begs her Ladiſhip would be his friend for the future, as ſhe hath been his enemy in times paſt.

As ſoon as the *Ducheſs's* Speech was ended, *Folly* and *Raſhneſs* ſtarted up, and both ſpake ſo thick and faſt at once, that not onely the Aſſembly, but themſelves were not able to underſtand each other: At which Fortune was ſomewhat out of countenance, and commanded them either to ſpeak ſingly, or be ſilent: But Prudence told her Ladiſhip, ſhe ſhould command them to ſpeak wiſely, as well as ſingly; otherwiſe, ſaid ſhe, it were beſt for them not to ſpeak at all: Which Fortune reſented very ill, and told Prudence, ſhe was too bold; and then commanded Folly to declare what ſhe would have made known: but her Speech was ſo fooliſh, mixt with ſuch non-ſence, that none knew what to make of it; beſides, it was ſo tedious, that Fortune bid her to be ſilent, and commanded Raſhneſs

to

to ſpeak for her, who began after this manner:

Great Fortune; *The Dutcheſs of* Newcaſtle *has proved her ſelf, according to report, a very Proud and Ambitious Lady, in preſuming to anſwer you her own ſelf, in this noble Aſſembly without your Command, in a Speech wherein ſhe did not onely contradict you, but preferred Honeſty and Prudence before you; ſaying, that her Lord was ready to ſerve you honeſtly and prudently; which preſumption is beyond all pardon; and if you allow Honeſty and Prudence to be above you, none will admire, worſhip or ſerve you; but you'l be forced to ſerve your ſelf, and will be deſpiſed, neglected and ſcorned by all; and from a Deity, become a miſerable, dirty, begging mortal in a Church-yard-Porch, or Noble-mans Gate: Wherefore to prevent ſuch diſaſters, fling as many misfortunes and neglects on the Duke and Dutcheſs of* Newcaſtle, *and their two friends, as your power is able to do; otherwiſe Prudence and Honeſty will be the chief and onely Moral Deities of Mortals.*

Raſhneſs having thus ended her Speech, *Prudence* roſe and declared her ſelf in this manner:

Beautiful Truth, Great Fortune, and you the reſt of my noble Friends; *I am come a great and long journey in the behalf of my dear Friend the* Duke *of* Newcaſtle, *not to make more wounds, but, if it be poſſible, to heal thoſe that are made already. Neither do I preſume to be a Deity; but my onely requeſt is, that you would be pleaſed to accept of my offering, I being an humble and devout*

ſupplicant, and ſince no offering is more acceptable to the Gods, then the offering of Peace; in order to that, I deſire to make an agreement between Fortune, *and the* Duke *of* Newcaſtle.

Thus ſhe ſpake, and as ſhe was going on, up ſtarted *Honeſty* (for ſhe has not always ſo much diſcretion as ſhe ought to have) and interrupted *Prudence.*

I came not here, ſaid ſhe, to hear Fortune *flattered, but to hear the Cauſe decided between* Fortune *and the* Duke; *neither came I hither to ſpeak Rhetorically and Eloquently, but to propound the caſe plainly and truly; and I'le have you know, that the* Duke, *whoſe Cauſe we argue, was and is my Foſter-ſon; For I* Honeſty *bred him from his Childhood, and made a perpetual friendſhip betwixt him and Gratitude, Charity and Generoſity; and put him to School to* Prudence, *who taught him Wiſdom, and informed him in the Rules of Temperance, Patience, Juſtice, and the like; then I put him into the Univerſity of Honour, where he learned all honourable Qualities, Arts, and Sciences; afterward I ſent him to travel through the World of Actions, and made Obſervation his Governour; and in thoſe his travels, he contracted a friendſhip with Experience; all which, made him fit for Heavens Bleſſings, and Fortunes Favours: But ſhe hating all thoſe that have merit and deſert, became his inveterate Enemy, doing him all the miſchief ſhe could, until the God of Juſtice oppoſed Fortunes Malice, and pull'd him out of thoſe ruines ſhe had caſt upon him: For this Go'ds Favours were the Dukes Champions;*

Champions; wherefore to be an Enemy to him, were to be an Enemy to the God of Juſtice: In ſhort, the true cauſe of Fortunes *Malice to this* Duke, *is, that he would never flatter her; for* I Honeſty, *did command him not to do it, or elſe he would be forced to follow all her inconſtant ways, and obey all her unjuſt commands, which would cauſe a great reproach to him: but, on the other ſide,* Prudence *adviſed him not to deſpiſe* Fortunes *favours, for that would be an obſtruction and hinderance to his worth and merit; and He to obey both our advice and counſels, did neither flatter nor deſpiſe Her, but was always humble and reſpectful to her, ſo far as Honour, Honeſty and Conſcience would permit: all which I refer to* Truths *Judgment, and expect her final ſentence.*

Fortune hearing thus *Honeſties* plain Speech, thought it very rude, and would not hearken to *Truths* Judgment, but went away in a Paſſion: At which, both the Empereſs and Ducheſs were extreamly troubled, that their endeavours ſhould have no better effect: but *Honeſty* chid the Ducheſs, and ſaid, ſhe was to be puniſhed for deſiring ſo much Fortunes favours; for it appears, ſaid ſhe, that you miſtruſt the Gods bleſſings: At which the Ducheſs wept, anſwering *Honeſty*, that ſhe did neither miſtruſt the Gods bleſſings, nor rely upon *Fortunes* favours; but deſired onely that her Lord might have no potent Enemies. The Empereſs being much troubled to ſee her weep, told *Honeſty* in anger, ſhe wanted the diſcretion of *Prudence*; for though you

you are commendable, ſaid ſhe, yet you are apt to commit many indiſcreet actions, unleſs *Prudence* be your gnide. At which reproof *Prudence* ſmiled, and *Honeſty* was ſomewhat out of countenance; but they ſoon became very good friends: and after the Ducheſs's ſoul had ſtayed ſome time with the Empereſs in the Blazing-world, ſhe begg'd leave of her to return to her Lord and Husband; which the Empereſs granted her, upon condition ſhe ſhould come and viſit her as often as convenintly ſhe could, promiſing that ſhe would do the ſame to the Ducheſs.

Thus the *Ducheſs's* ſoul, after ſhe had taken her leave of the *Empereſs*, as alſo of the *Spirits*, who with great civility, promiſed her, that they would endeavour in time to make a peace and agreement between *Fortune* and the *Duke*, returned with *Prudence* and *Honeſty* into her own World: But when ſhe was juſt upon her departure, the *Empereſs* ſent to Her, and deſired that ſhe might yet have ſome little conference with her before ſhe went; which the *Ducheſs* moſt willingly granted her Majeſty, and when ſhe came to wait on Her, the *Empereſs* told the *Ducheſs*, that ſhe being Her dear Platonick friend, of whoſe juſt and impartial judgment, ſhe had always a very great eſteem, could not forbear, before ſhe went from her, to ask her advice concerning the Government of the *Blazing-world*; For, ſaid ſhe, although this World was very well and wiſely order'd and governed

verned at firſt, when I came to be Empereſs thereof; yet the nature of Women, being much delighted with change and variety, after I had received an abſolute Power from the Emperour, did ſomewhat alter the Form of Government from what I found it; but now perceiving that the world is not ſo quiet as it was at firſt, I am much troubled at it; eſpecially there are ſuch continual contentions and diviſions between the *Worm-Bear-* and *Fly-*men, the *Ape-*men, the *Satyrs*, the *Spider-*men, and all others of ſuch ſorts, that I fear they'l break out into an open Rebellion, and cauſe a great diſorder and ruine of the Government; and therefore I deſire your advice and aſſiſtance, how I may order it to the beſt advantage, that this World may be rendred peaceable, quiet and happy, as it was before. Whereupon the Ducheſs anſwered, That ſince ſhe heard by her Imperial Majeſty, how well and happily the World had been governed when ſhe firſt came to be Empereſs thereof, ſhe would adviſe her Majeſty to introduce the ſame form of Government again, which had been before; that is, to have but one Soveraign, one Religion, one Law, and one Language, ſo that all the World might be but as one united Family, without diviſions; nay, like God, and his Bleſſed Saints and Angels: Otherwiſe, ſaid ſhe, it may in time prove as unhappy, nay, as miſerable a World as that is from which I came, wherein are more Soveraigns then Worlds, and more pretended Governours then Go-

vernments, more Religions then Gods, and more Opinions in thoſe Religions then Truths; more Laws then Rights, and more Bribes then Juſtices, more Policies then Neceſſities, and more Fears then Dangers, more Covetouſneſs then Riches, more Ambitions then Merits, more Services then Rewards, more Languages then Wit, more Controverſie then Knowledg, more Reports then noble Actions, and more Gifts by partiality, then according to merit; all which, ſaid ſhe, is a great miſery, nay, a curſe, which your bleſſed *Blazing-world* never knew, nor 'tis probable, will never know of, unleſs your Imperial Majeſty alter the Government thereof from what it was when you began to govern it: And ſince your Majeſty complain much of the factions of the *Bear- Fiſh- Fly- Ape-* and *Worm-*men, the *Satyrs, Spider-men,* and the like, and of their perpetual diſputes and quarrels, I would adviſe your Majeſty to diſſolve all their ſocieties; for 'tis better to be without their intelligences, then to have an unquiet and diſorderly Government. The truth is, ſaid ſhe, whereſoever is Learning, there is moſt commonly alſo Controverſie and Quarrelling; for there be always ſome that will know more, and be wiſer then others; ſome think their arguments come nearer to truth, and are more rational then others; ſome are ſo wedded to their own opinions, that they'l never yield to Reaſon; and others, though they find their Opinions not firmly grounded upon Reaſon, yet for fear of receiving ſome diſgrace

diſgrace by altering them, will nevertheleſs maintain them againſt all ſenſe and reaſon, which muſt needs breed factions in their Schools, which at laſt break out into open Wars, and draw ſometimes an utter ruine upon a State or Government. The Empereſs told the Ducheſs, that ſhe would willingly follow her advice, but ſhe thought it would be an eternal diſgrace to her, to alter her own Decrees, Acts and Laws. To which the Ducheſs anſwered, That it was ſo far from a diſgrace, as it would rather be for her Majeſties eternal honour, to return from a worſe to a better, and would expreſs and declare Her to be more then ordinary wiſe and good; ſo wiſe, as to perceive her own errors, and ſo good, as not to perſiſt in them, which few did; for which, ſaid ſhe, you will get a glorious fame in this World, and an Eternal glory hereafter; and I ſhall pray for it ſo long as I live. Upon which advice, the Empereſs's Soul embraced and kiſs'd the Ducheſs's ſoul with an immaterial kiſs, and ſhed immaterial tears, that ſhe was forced to part from her, finding her not a flattering Paraſite, but a true friend; and, in truth, ſuch was their Platonick Friendſhip, as theſe two loving Souls did often meet and rejoice in each others Converſation.

THE

SECOND PART

OF THE

DESCRIPTION

OF THE

New Blazing World.

THE Empereſs having now ordered and ſetled her Government to the beſt advantage and quiet of her *Blazing-world*, lived and reigned moſt happily and bleſſedly, and received oftentimes viſits from the Immaterial Spirits, who gave her Intelligence of all ſuch things as ſhe deſired to know, and they were able to inform her of: One time they told her, how the World ſhe came from, was embroiled in a great War, and that moſt parts or Nations thereof made war againſt that Kingdom, which was her Native Country,

where all her Friends and Relations did live, at which the Empereſs was extreamly troubled; inſomuch that the Emperor perceived her grief by her tears, and examining the cauſe thereof, ſhe told him that ſhe had received Intelligence from the Spirits, that that part of the World ſhe came from, which was her native Country, was like to be deſtroyed by numerous Enemies that made war againſt it. The Emperor being very ſenſible of this ill news, eſpecially of the Trouble it cauſed to the Empereſs, endeavoured to comfort her as much as poſsibly he could, and told her, that ſhe might have all the aſſiſtance which the *Blazing-world* was able to afford. She anſwered, That if there were any poſſibility of tranſporting Forces out of the Blazing-world, into the World ſhe came from, ſhe would not fear ſo much the ruine thereof: but, ſaid ſhe, there being no probability of effecting any ſuch thing, I know not how to ſhew my readineſs to ſerve my Native Country. The Emperor asked, Whether thoſe Spirits that gave her Intelligence of this War, could not with all their Power and Forces aſſiſt her againſt thoſe Enemies? She anſwered, That Spirits could not arm themſelves, nor make any uſe of Artificial Arms or Weapons; for their Vehicles were Natural Bodies, not Artificial: Beſides, ſaid ſhe, the violent and ſtrong actions of War, will never agree with Immaterial Spirits; for Immaterial Spirits cannot fight, nor make Trenches, Fortifications, and the like. But, ſaid the Emperor, their Vehicles can; eſpecially

eſpecially if thoſe Vehicles be mens Bodies, they may be ſerviceable in all the actions of War. Alas, replied the Empereſs, that will never do; for firſt, ſaid ſhe, it will be difficult to get ſo many dead Bodies for their Vehicles, as to make up a whole Army, much more to make many Armies to fight with ſo many ſeveral Nations; nay, if this could be, yet it is not poſſible to get ſo many dead and undiſſolved bodies in one Nation; and for tranſporting them out of other Nations, would be a thing of great difficulty and improbability: But put the caſe, ſaid ſhe, all theſe difficulties could be overcome, yet there is one obſtruction or hinderance which can no ways be avoided; for although thoſe dead and undiſſolved Bodies did all die in one minute of time, yet before they could Rendezvouze, and be put into a poſture of War, to make a great and formidable Army, they would ſtink and diſſolve; and when they came to a fight, they would moulder into duſt and aſhes, and ſo leave the purer Immaterial Spirits naked: nay, were it alſo poſſible, that thoſe dead bodies could be preſerved from ſtinking and diſſolving, yet the ſouls of ſuch bodies would not ſuffer Immaterial Spirits to rule and order them, but they would enter and govern them themſelves, as being the right owners thereof, which would produce a War between thoſe Immaterial Souls, and the Immaterial Spirits in Material Bodies; all which would hinder them from doing any ſervice in the actions of War, againſt the Enemies

of

of my Native Countrey. You ſpeak Reaſon, ſaid the Emperor, and I wiſh with all my Soul I could adviſe any manner or way, that you might be able to aſſiſt it; but you having told me of your dear Platonick Friend the Ducheſs of *Newcaſtle*, and of her good and profitable Counſels, I would deſire you to ſend for her Soul, and confer with her about this buſineſs.

The Empereſs was very glad of this motion of the Emperor, and immediately ſent for the Soul of the ſaid Ducheſs, which in a minute waited on her Majeſty. Then the Empereſs declared to her the grievance and ſadneſs of her mind, and how much ſhe was troubled and afflicted at the News brought her by the Immaterial Spirits, deſiring the Ducheſs, if poſſible, to aſſiſt her with the beſt counſels ſhe could, that ſhe might ſhew the greatneſs of her love and affection which ſhe bore to her Native Countrey. Whereupon the Ducheſs promiſed her Majeſty to do what lay in her power; and ſince it was a buſineſs of great Importance, ſhe deſired ſome time to conſider of it; for, ſaid ſhe, Great Affairs require deep conſiderations; which the Empereſs willingly allowed her. And after the Ducheſs had conſidered ſome little time, ſhe deſired the Empereſs to ſend ſome of her *Syrenes* or Mear-Men, to ſee what paſſages they could find out of the Blazing-World, into the World ſhe came from; for ſaid ſhe, if there be a paſ-

a paſſage for a Ship to come out of that World into this; then certainly there may alſo a Ship paſs thorow the ſame paſſage out of this World into that. Hereupon the Mear-or Fiſh-men were ſent out; who being many in number, employ'd all their induſtry, and did ſwim ſeveral ways; at laſt having found out the paſſage, they returned to the Empereſs, and told her, That as their Blazing-World had but one Emperor, one Government, one Religion, and one Language, ſo there was but one Paſſage into that World, which was ſo little, that no Veſſel bigger than a Packet-Boat could go thorow; neither was that Paſſage always open, but ſometimes quite frozen up. At which Relation both the Empereſs and Ducheſs ſeemed ſomewhat troubled, fearing that this would perhaps be an hinderance or obſtruction to their Deſign.

At laſt the Ducheſs deſired the Empereſs to ſend for her Ship-wrights, and all her Architects, which were Giants; who being called, the Ducheſs told them how ſome in her own World had been ſo ingenious, and contrived Ships that could ſwim under Water, and asked whether they could do the like? The Gyants anſwered, They had never heard of that Invention; nevertheleſs, they would try what might be done by Art, and ſpare no labour or induſtry to find it out. In the mean time, while both the Empereſs and Ducheſs were in a ſerious Counſel,

after many debates, the Ducheſs deſired but a few Ships to tranſport ſome of the Bird- Worm- and Bear-men. Alas! ſaid the Empereſs, What can ſuch ſorts of Men do in the other World? eſpecially ſo few? They will be ſoon deſtroyed, for a Muſket will deſtroy numbers of Birds at one ſhot. The Ducheſs ſaid, I deſire your Majeſty will have but a little patience, and rely upon my advice, and you ſhall not fail to ſave your own Native Country, and in a manner become Miſtreſs of all that World you came from. The Empereſs, who loved the Ducheſs as her own Soul, did ſo; the Gyants returned ſoon after, and told her Majeſty, that they had found out the Art which the Ducheſs had mentioned, to make ſuch Ships as could ſwim under Water; which the Empereſs and Ducheſs were both very glad at, and when the Ships were made ready, the Ducheſs told the Empereſs, that it was requiſite that her Majeſty ſhould go her ſelf in body as well as in Soul; but, I, ſaid ſhe, can onely wait on your Majeſty after a Spiritual manner, that is, with my Soul. Your Soul, ſaid the Empereſs, ſhall live with my Soul, in my Body; for I ſhall onely deſire your Counſel and Advice. Then ſaid the Ducheſs, Your Majeſty muſt command a great number of your Fiſh-men to wait on your Ships; for you know that your Ships are not made for Cannons, and therefore are no ways ſerviceable in War; for though by the help of your Engines they can drive on, and your Fiſh-men may by the help

help of Chains or Ropes, draw them which way they will, to make them go on, or flye back, yet not ſo as to fight: And though your Ships be of Gold, and cannot be ſhot thorow, but onely bruiſed and battered; yet the Enemy will aſſault and enter them, and take them as Prizes; wherefore your Fiſhmen muſt do you Service inſtead of Cannons. But how, ſaid the Empereſs, can the Fiſh-men do me ſervice againſt an Enemy, without Canons and all ſorts of Arms? That is the reaſon, anſwered the Ducheſs, that I would have numbers of Fiſh-men, for they ſhall deſtroy all your Enemies Ships, before they can come near you. The Empereſs asked in what manner that could be? Thus, anſwered the Ducheſs: Your Majeſty muſt ſend a number of Worm-men to the Burning-Mountains (for you have good ſtore of them in the Blazing-World) which muſt get a great quantity of the Fire-ſtone, whoſe property, you know, is, that it burns ſo long as it is wet; and the Ships in the other World being all made of Wood, they may by that means ſet them all on fire; and if you can but deſtroy their Ships, and hinder their Navigation, you will be Miſtreſs of all that World, by reaſon moſt parts thereof cannot live without Navigation. Beſides, ſaid ſhe, the Fire-ſtone will ſerve you inſtead of light or torches; for you know, that the World you are going into, is dark at nights (eſpecially if there be no

Moon-

Moon-ſhine, or if the Moon be overſhadowed by Clouds) and not ſo full of Blazing-Stars as this World is, which make as great a light in the abſence of the Sun, as the Sun doth when it is preſent; for that World hath but little blinking Stars, which make more ſhadows then light, and are onely able to draw up Vapours from the Earth, but not to rarifie or clarifie them, or to convert them into ſerene air.

This Advice of the Ducheſs was very much approved, and joyfully embraced by the Empereſs, who forthwith ſent her Worm-men to get a good quantity of the mentioned Fire-ſtone. She alſo commanded numbers of Fiſh-men to wait on her under water, and Bird-men to wait on her in the air; and Bear-and Worm-men to wait on her in Ships, according to the Ducheſs's advice; and indeed the Bear-men were as ſerviceable to her as the North-Star; but the Bird-men would often reſt themſelves upon the Decks of the Ships; neither would the Empereſs, being of a ſweet and noble Nature, ſuffer that they ſhould tire or weary themſelves by long flights; for though by Land they did often flye out of one Countrey into another, yet they did reſt in ſome Woods, or on ſome Grounds, eſpecially at night, when it was their ſleeping time: And therefore the Empereſs was forced to take a great many Ships along with her, both for tranſporting thoſe ſeveral ſorts of her loyal

and

and ſerviceable Subjects, and to carry proviſions for them: Beſides, ſhe was ſo wearied with the Petitions of ſeveral others of her Subjects who deſired to wait on her Majeſty, that ſhe could not poſſibly deny them all; for ſome would rather chuſe to be drowned, then not tender their duty to her.

Thus after all things were made fit and ready, the Empereſs began her Journey, I cannot properly ſay, ſhe ſet Sail, by reaſon in ſome Part, as in the paſſage between the two Worlds (which yet was but ſhort) the Ships were drawn under water by the Fiſh-men with Golden Chains, ſo that they had no need of Sails there, nor of any other Arts, but onely to keep out water from entering into the Ships, and to give or make ſo much Air as would ſerve for breath or reſpiration, thoſe Land Animals that were in the Ships; which the Giants had ſo Artificially contrived, that they which were therein found no inconveniency at all: And after they had paſſed the Icy Sea, the Golden Ships appeared above water, and ſo went on until they came near the Kingdom that was the Empereſs's Native Countrey; where the Bear-men through their Teleſcopes diſcovered a great number of Ships which had beſet all that Kingdom, well rigg'd and mann'd.

The Empereſs before ſhe came in ſight of the Enemy, ſent ſome of her Fiſh-and Bird-men to bring her Intelligence of their Fleet; and hearing of their

number, their ſtation and poſture, ſhe gave order that when it was Night, her Bird-men ſhould carry on their backs ſome of the mentioned Fire-ſtones, with the tops thereof wetted; and the Fiſh-men ſhould carry them likewiſe, and hold them out of the Water; for they were cut in the form of Torches or Candles, and being many thouſands, made a terrible ſhew; for it appear'd as if all the Air and Sea had been of a flaming Fire; and all that were upon the Sea, or near it, did verily believe, the time of Judgment, or the Laſt Day was come, which made them all fall down, and Pray.

At the break of Day, the Empereſs commanded thoſe Lights to be put out, and then the Naval Forces of the Enemy perceived nothing but a Number of Ships without Sails, Guns, Arms, and other Inſtruments of War; which Ships ſeemed to ſwim of themſelves, without any help or aſſiſtance: which ſight put them into a great amaze; neither could they perceive that thoſe Ships were of Gold, by reaſon the Empereſs had cauſed them all to be coloured black, or with a dark colour; ſo that the natural colour of the Gold could not be perceived through the artificial colour of the paint, no not by the beſt Teleſcopes. All which put the Enemies Fleet into ſuch a fright at night, and to ſuch wonder in the morning, or at day time, that they knew not what to judg or make of them; for they knew neither what

Ships

Ships they were, nor what Party they belonged to, inſomuch that they had no power to ſtir.

In the mean while, the Empereſs knowing the Colours of her own Country, ſent a Letter to their General, and the reſt of the chief Commanders, to let them know, that ſhe was a great and powerful Princeſs, and came to aſſiſt them againſt their Enemies; wherefore ſhe deſired they ſhould declare themſelves, when they would have her help and aſſiſtance.

Hereupon a Councel was called, and the buſineſs debated; but there were ſo many croſs and different Opinions, that they could not ſuddenly reſolve what anſwer to ſend the Empereſs; at which ſhe grew angry, inſomuch that ſhe reſolved to return into her Blazing-world, without giving any aſſiſtance to her Countrymen: But the Ducheſs of *Newcaſtle* intreated her Majeſty to abate her paſſion; for, ſaid ſhe, Great Councels are moſt commonly ſlow, becauſe many men have many ſeveral Opinions: beſides, every Councellor ſtriving to be the wiſeſt, makes long ſpeeches, and raiſes many doubts, which cauſe retardments. If I had long ſpeeched Councellours, replied the Empereſs, I would hang them, by reaſon they give more Words, then Advice. The Ducheſs anſwered, that her Majeſty ſhould not be angry, but conſider the differences of that and her Blazing-world; for, ſaid ſhe, they are not both alike; but there are groſſer and duller underſtandings in this, then in the Blazing-world.

At

At laſt a Meſſenger came out, who returned the Empereſs thanks for her kind profer, but deſired withal to know from whence ſhe came, and how, and in what manner her aſſiſtance could be ſerviceable to them? The Empereſs anſwered, That ſhe was not bound to tell them whence ſhe came;but as for the manner of her aſſiſtance, I will appear, ſaid ſhe, to your Navy in a ſplendorous Light, ſurrounded with Fire. The Meſſenger asked at what time they ſhould expect her coming? I'le be with you, anſwered the Empereſs, about one of the Clock at night. With this report the Meſſenger returned; which made both the poor Counſellers and Sea-men much afraid; but yet they longed for the time to behold this ſtrange ſight.

The appointed hour being come, the Empereſs appear'd with Garments made of the Star-ſtone, and was born or ſupported above the Water, upon the Fiſhmens heads and backs, ſo that ſhe ſeemed to walk upon the face of the Water, and the Bird- and Fiſh-men carried the Fire-ſtone, lighted both in the Air, and above the Waters.

Which ſight, when her Country-men perceived at a diſtance, their hearts began to tremble; but coming ſomething nearer, ſhe left her Torches, and appeared onely in her Garments of Light, like an Angel, or ſome Deity, and all kneeled down before her, and worſhipped her with all ſubmiſſion and reverence: But the

the Empereſs would not come nearer then at ſuch a diſtance where her voice might be generally heard, by reaſon ſhe would not have that of her Accouſtrements any thing elſe ſhould be perceived, but the ſplendor thereof; and when ſhe was come ſo near that her voice could be heard and underſtood by all, ſhe made this following Speech:

Dear Country-men, *for ſo you are, although you know me not; I being a Native of this Kingdom, and hearing that moſt part of this World had reſolved to make War againſt it, and ſought to deſtroy it, at leaſt to weaken its Naval Force and Power; have made a Voyage out of another World, to lend you my aſſiſtance againſt your Enemies. I come not to make bargains with you, or to regard my own Intereſt, more then your ſafety; but I intend to make you the moſt powerful Nation of this World; and therefore I have choſen rather to quit my own Tranquility, Riches and Pleaſure, then ſuffer you to be ruined aud deſtroyed. All the Return I deſire, is but your Grateful acknowledgment, and to declare my Power, Love and Loyalty to my Native Country; for although I am now a great and abſolute Princeſs and Empereſs of a whole World, yet I acknowledg that once I was a Subject of this Kingdom, which is but a ſmall part of this World; and therefore I will have you undoubtedly believe, that I ſhall deſtroy all your Enemies before this following Night, I mean thoſe which trouble you by Sea; and if you have any*

by Land, aſſure your ſelf I ſhall alſo give you my Aſſiſtance againſt them, and make you Triumph over all that ſeek your Ruine and Deſtruction.

Upon this Declaration of the Empereſs, when both the General, and all the Commanders in their ſeveral Ships had return'd their humble and hearty Thanks to Her Majeſty for ſo great a favour to them, ſhe took her leave and departed to her own Ships. But, Good Lord! what ſeveral Opinions and Judgments did this produce in the minds of her Country-men; ſome ſaid ſhe was an Angel; others, ſhe was a Sorcereſs; ſome believed her a Goddeſs; others ſaid the Devil deluded them in the ſhape of a fine Lady.

The morning after, when the Navies were to fight, the Empereſs appear'd upon the face of the Waters, dreſs'd in her Imperial Robes, which were all of Diamonds and Carbuncles; in one hand ſhe held a Buckler, made of one intire Carbuncle, and in the other hand a Spear of one intire Diamond; on her head ſhe had a Cap of Diamonds, and juſt upon the top of the Crown, was a Star made of the Star-ſtone, mentioned heretofore, and a Half-moon made of the ſame ſtone, was placed on her forehead; all her other Garments were of ſeveral ſorts of precious Jewels; and having given her Fiſh-men directions how to deſtroy the Enemies of her Native Country, ſhe proceeded to effect her deſign. The Fiſh-men were to carry the Fire-ſtones

Fire-ſtones in caſes of Diamonds (for the Diamonds in the Blazing-world are in ſplendor ſo far beyond the Diamonds of this World, as Peble-ſtones are to the beſt ſort of this Worlds Diamonds) and to uncaſe or uncover thoſe Fire-ſtones no ſooner but when they were juſt under the Enemies Ships, or cloſe at their ſides, and then to wet them, and ſet their Ships on fire; which was no ſooner done, but all the Enemies Fleet was of a Flaming-fire; and coming to the place where the Powder was, it ſtreight blew them up; ſo that all the ſeveral Navies of the Enemies, were deſtroyed in a ſhort time: which when her Countrymen did ſee, they all cried out with one voice, that ſhe was an Angel ſent from God to deliver them out of the hands of their Enemies: Neither would ſhe return into the Blazing-world, until ſhe had forced all the reſt of that World to ſubmit to that ſame Nation.

In the mean time, the General of all their Naval Forces ſent to their Soveraign to acquaint him with their miraculous Delivery and Conqueſt, and with the Empereſs's deſign of making him the moſt powerful Monarch of all that World. After a ſhort time, the Empereſs ſent her ſelf to the Soveraign of that Nation to know in what ſhe could be ſerviceable to him; who returning her many thanks, both for her aſſiſtance againſt his Enemies, and her kind profer to do him further ſervice for the good and benefit of his Nations (for he was King over ſeveral Kingdoms) ſent her word,

that

that although ſhe did partly deſtroy his Enemies by Sea, yet they were ſo powerful, that they did hinder the Trade and Traffick of his Dominions. To which the Empereſs returned this anſwer, That ſhe would burn and ſink all thoſe Ships that would not pay him Tribute; and forthwith ſent to all the Neighbouring Nations, who had any Traffick by Sea, deſiring them to pay Tribute to the King and Soveraign of that Nation where ſhe was born; But they denied it with great ſcorn. Whereupon ſhe imediately commanded her Fiſh-men to deſtroy all ſtrangers Ships that traffick'd on the Seas; which they did according to the Empereſs's Command; and when the neighbouring Nations and Kingdoms perceived her power, they were ſo diſcompoſed in their affairs and deſigns, that they knew not what to do: At laſt they ſent to the Empereſs, and deſired to treat with her, but could get no other conditions then to ſubmit and pay Tribute to the ſaid King and Soveraign of her Native Country, otherwiſe, ſhe was reſolved to ruine all their Trade and Traffick by burning their Ships. Long was this Treat, but in fine, they could obtain nothing, ſo that at laſt they were forced to ſubmit; by which the King of the mentioned Nations became abſolute Maſter of the Seas, and conſequently of that World; by reaſon, as I mentioned heretofore, the ſeveral Nations of that World could not well live without Traffick and Commerce, by Sea, as well as by Land.

But

But after a ſhort time, thoſe Neighbouring Nations finding themſelves ſo much inſlaved, that they were hardly able to peep out of their own Dominions without a chargeable Tribute, they all agreed to join again their Forces againſt the King and Soveraign of the ſaid Dominions; which when the Empereſs receiv'd notice of, ſhe ſent out her Fiſh-men to deſtroy, as they had done before, the remainder of all their Naval Power, by which they were ſoon forced again to ſubmit, except ſome Nations which could live without Forreign Traffick, and ſome whoſe Trade and Traffick was meerly by Land; theſe would no wayes be Tributary to the mentioned King. The Empereſs ſent them word, That in caſe they did not ſubmit to him, ſhe intended to fire all their Towns and Cities, and reduce them by force, to what they would not yield with a good will. But they rejected and ſcorned her Majeſties Meſſage, which provoked her anger ſo much, that ſhe reſolved to ſend her Bird- and Worm-men thither, with order to begin firſt with their ſmaller Towns, and ſet them on fire (for ſhe was loath to make more ſpoil then ſhe was forced to do) and if they remain'd ſtill obſtinate in their reſolutions, to deſtroy alſo their greater Cities. The onely difficulty was, how to convey the Worm-men conveniently to thoſe places; but they deſired that her Majeſty would but ſet them upon any part of the Earth of thoſe Nations,

and they could travel within the Earth as eaſily, and as nimbly as men upon the face of the Earth; which the Empereſs did according to their deſire.

But before both the Bird-and Worm-men began their Journey, the Empereſs commanded the Bear-men to view through their Teleſcopes what Towns and Cities thoſe were that would not ſubmit; and having a full information thereof, ſhe inſtructed the Bird-and Bear-men what Towns they ſhould begin withall; in the mean while ſhe ſent to all the Princes and Soveraigns of thoſe Nations, to let them know that ſhe would give them a proof of her Power, and check their Obſtinacies by burning ſome of their ſmaller Towns; and if they continued ſtill in their Obſtinate Reſolutions, that ſhe would convert their ſmaller Loſs into a Total Ruine. She alſo commanded her Bird-men to make their flight at night, leſt they be perceived. At laſt when both the Bird-and Worm-men came to the deſigned places, the Worm-men laid ſome Fire-ſtones under the Foundation of every Houſe, and the Bird-men placed ſome at the tops of them, ſo that both by rain, and by ſome other moiſture within the Earth, the ſtones could not fail of burning. The Bird-men in the mean time having learned ſome few words of their Language, told them, That the next time it did rain, their Towns would be all on fire; at which they were amaz'd to hear men ſpeak in the air; but with-

withall they laughed when they heard them ſay that rain ſhould fire their Towns, knowing that the effect of Water was to quench, not produce fire.

At laſt a rain came, and upon a ſudden all their Houſes appeared of a flaming Fire, and the more Water there was poured on them, the more they did flame and burn; which ſtruck ſuch a Fright and Terror into all the Neighbouring Cities, Nations and Kingdoms, that for fear the like ſhould happen to them, they and all the reſt of the parts of that World granted the Empereſs's deſire, and ſubmitted to the Monarch and Soveraign of her Native Countrey, the King of ESFI; ſave one, which having ſeldom or never any rain, but onely dews, which would ſoon be ſpent in a great fire, ſlighted her Power: The Empereſs being deſirous to make it ſtoop, as well as the reſt, knew that every year it was watered by a flowing Tide, which laſted ſome weeks; and although their Houſes ſtood high from the ground, yet they were built upon Supporters which were fixt into the ground. Wherefore ſhe commanded both her Bird-and Worm-men to lay ſome of the Fire-ſtones at the bottom of thoſe Supporters, and when the Tide came in, all their Houſes were of a Fire, which did ſo rarifie the Water, that the Tide was ſoon turn'd into Vapour, and this Vapour again into Air; which cauſed not onely a deſtruction of their Houſes, but alſo a general barrenneſs

over

over all their Countrey that year, and forced them to ſubmit as well as the reſt of the World had done.

Thus the Empereſs did not onely ſave her Native Countrey, but made it the abſolute Monarchy of all that World; and both the effects of her Power and her Beauty did kindle a great deſire in all the greateſt Princes to ſee her; who hearing that ſhe was reſolved to return into her own Blazing-World, they all entreated the favour, that they might wait on her Majeſty before ſhe went. The Empereſs ſent word, That ſhe ſhould be glad to grant their Requeſts; but having no other place of reception for them, ſhe deſired that they would be pleaſed to come into the open Seas with their Ships, and make a Circle of a pretty large compaſs, and then her own Ships ſhould meet them, and cloſe up the Circle, and ſhe would preſent her ſelf to the view of all thoſe that came to ſee her: Which Anſwer was joyfully received by all the mentioned Princes, who came, ſome ſooner, and ſome later, each according to the diſtance of his Countrey, and the length of the voyage. And being all met in the form and manner aforeſaid, the Empereſs appeared upon the face of the Water in her Imperial Robes; in ſome part of her hair ſhe had placed ſome of the Star-Stone, near her face, which added ſuch a luſtre and glory to it, that it cauſed a great admiration in all that were preſent, who believed her to be ſome Celeſtial Creature, or rather

rather an uncreated Goddeſs, and they all had a deſire to worſhip her; for ſurely, ſaid they, no mortal creature can have ſuch a ſplendid and tranſcendent beauty, nor can any have ſo great a power as ſhe has, to walk upon the Waters, and to deſtroy whatever ſhe pleaſes, not onely whole Nations, but a whole World.

The Empereſs expreſſed to her own Countreymen, who were alſo her Interpreters to the reſt of the Princes that were preſent, that ſhe would give them an entertainment at the darkeſt time of night; which being come, the Fire-Stones were lighted, which made both Air and Seas appear of a bright ſhining flame, inſomuch that they put all Spectators into an extream fright, who verily believed, they ſhould all be deſtroyed; which the Empereſs perceiving, cauſed all the Lights of the Fire-Stones to be put out, and onely ſhewed her ſelf in her Garments of Light: The Bird-men carried her upon their backs into the Air, and there ſhe appear'd as glorious as the Sun. Then ſhe was ſet down upon the Seas again, and preſently there was heard the moſt melodious and ſweeteſt Conſort of Voices, as ever was heard out of the Seas, which was made by the Fiſhmen; this Conſort was anſwered by another, made by the Bird-men in the Air, ſo that it ſeem'd as if Sea and Air had ſpoke and anſwered each other by way of Singing Dialogues, or after the manner

of thoſe Plays that are acted by ſin ging Voices.

But when it was upon break of day, the Empereſs ended her entertainment, and at full day light all the Princes perceived that ſhe went into the Ship wherein the Prince and Monarch of her Native Country was, the King of *E S F I* with whom ſhe had ſeveral Conferences; and having aſſured him of the readineſs of her aſſiſtance whenſoever he required it, telling him withal, that ſhe wanted no Intelligence, ſhe went forth again upon the Waters, and being in the midſt of the Circle made by thoſe Ships that were preſent, ſhe deſired them to draw ſomewhat nearer, that they might hear her ſpeak; which being done, ſhe declared her ſelf in this following manner:

Great, Heroick, and Famous Monarchs: *I came hither to aſſiſt the King of* E S F I *againſt his Enemies, he being unjuſtly aſſaulted by many ſeveral Nations, which would fain take away his Hereditary Rights and Prerogatives of the Narrow Seas; at which Unjuſtice Heaven was much diſpleaſed; and for the Injuries he received from his Enemies, rewarded him with an abſolute Power, ſo that now he is become the Head-Monarch of all this World; which Power, though you may envy, yet you can no ways hinder him; for all thoſe that endeavour to reſiſt his Power, ſhall onely get loſs for their labour, and no Victory for their profit. Wherefore my advice to you all is, to pay him Tribute juſtly and truly, that you may live*

live Peaceably and Happily, and be rewarded with the Bleſſings of Heaven, which I wiſh you from my Soul.

After the Empereſs had thus finiſhed her Speech to the Princes of the ſeveral Nations of that World, ſhe deſired that their Ships might fall back, which being done, her own Fleet came into the Circle, without any viſible aſſiſtance of Sails or Tide; and her ſelf being entred into her own Ship, the whole Fleet ſunk imediately into the bottom of the Seas, and left all the Spectators in a deep amazement; neither would ſhe ſuffer any of her Ships to come above the Waters until ſhe arrived into the Blazing-world.

In time of the Voyage, both the Empereſs's and Ducheſs's Soul were very gay and merry, and ſometimes they would converſe very ſeriouſly with each other: amongſt the reſt of their diſcourſes, the Ducheſs ſaid, ſhe wondered much at one thing, which was, that ſince her Majeſty had found out a paſſage out of the Blazing-world into the World ſhe came from, ſhe did not inrich that part of the World where ſhe was born, at leaſt her own Family, when as yet ſhe had enough to inrich the whole World. The Empereſs's Soul anſwered, that ſhe loved her Native Country and her own Family as well as any Creature could do, and that this was the reaſon why ſhe would not inrich them; for ſaid ſhe, not onely particular Families or Nations,

ons, but all the World, their natures are ſuch, that much Gold, and great ſtore of Riches makes them mad, inſomuch as they endeavour to deſtroy each other for Gold, or Riches ſake. The reaſon thereof is, ſaid the Ducheſs, that they have too little Gold and Riches, which makes them ſo eager to have it. No, replied the Empereſs's Soul, their particular covetouſneſs is beyond all the wealth of the richeſt World, and the more Riches they have, the more Covetous they are, for their Covetouſneſs is Infinite; But, ſaid ſhe, I would there could a paſſage be found out of the Blazing-world into the World whence you came, and I would willingly give you as much riches as you deſir'd. The Ducheſs's Soul gave her Majeſty humble thanks for her great favour, and told her that ſhe was not covetous, nor deſir'd any more wealth then what her Lord and Husband had before the Civil Wars; Neither, ſaid ſhe, ſhould I deſire it for my own, but my Lord's Poſterities ſake. Well, ſaid the Empereſs, I'le command my Fiſh-men to uſe all their skill and induſtry to find out a paſſage into that World which your Lord and Husband is in. I do verily believe, anſwered the Ducheſs, that there will be no paſſage found into that World; but if there were any, I ſhould not Petition your Majeſty for Gold and Jewels, but onely for the Elixir that grows in the midſt of the Golden Sands, for to preſerve Life and Health; but without a paſſage it is impoſſible to carry away any

of

of it, for whatſoever is Material, cannot travel like Immaterial Beings ſuch as Souls and Spirits are; Neither do Souls require any ſuch thing that might revive them, or prolong their lives, by reaſon they are unalterable: for were Souls like Bodies, then my Soul might have had the benefit of that Natural Elixir that grows in your Blazing-world. I wiſh earneſtly, ſaid the Empereſs, that a paſſage might be found, and then both your Lord and your ſelf ſhould neither want Wealth, nor long Life; nay, I love you ſo well, that I would make you as great and Powerful a Monarchess as I am of the Blazing-world. The Ducheſs's Soul humbly thank'd her Majeſty, and told her, that ſhe acknowledged and eſteemed her love beyond all things that are in Nature.

After this Diſcourſe they had many other Conferences, which for brevities ſake I'le forbear to rehearſe. At laſt, after ſeveral queſtions which the Empereſs's Soul asked the Ducheſs, ſhe deſired to know the reaſon why ſhe did take ſuch delight when ſhe was joyned to her body, in being ſingular both in Accouſtrements, Behaviour and Diſcourſe? The Ducheſs's Soul anſwered, ſhe confeſſed that it was extravagant, and beyond what was uſual and ordinary; but yet her ambition being ſuch, that ſhe would not be like others in any thing if it were poſſible; I endeavour, ſaid ſhe, to be as ſingular as I can; for it argues but a mean Nature to imitate others; and though I do not love to be

imitated if I can poſſibly avoid it; yet rather then imitate others, I ſhould chuſe to be imitated by others; for my nature is ſuch, that I had rather appear worſe in ſingularity, then better in the Mode. If you were not a great Lady, replied the Empereſs, you would never paſs in the World for a wiſe Lady; for the World would ſay your ſingularities are Vanities. The Ducheſs's Soul anſwered, ſhe did not at all regard the cenſure of this or any other age concerning vanities; but, ſaid ſhe, neither this preſent, nor any of the future ages can or will truly ſay that I am not Vertuous and Chaſt; for I am confident, all that were or are acquainted with me, and all the Servants which ever I had, will or can upon their Oaths declare my actions no otherwiſe then Vertuous; and certainly there's none, even of the meaneſt Degree, which have not their Spies and Witneſſes, much more thoſe of the Nobler ſort, which ſeldom or never are without attendants, ſo that their faults (if they have any) will eaſily be known, and as eaſily divulged: Wherefore happy are thoſe Natures that are Honeſt, Virtuous and Noble, not onely happy to themſelves, but happy to their Families. But, ſaid the Empereſs, if you glory ſo much in your Honeſty and Vertue, how comes it that you plead for Diſhoneſt and Wicked perſons in your Writings? The Ducheſs anſwered, it was onely to ſhew her Wit, not her Nature.

At

At laſt the Empereſs arrived into the Blazing World, and coming to her Imperial Palace, you may ſooner imagine than expect that I ſhould expreſs the joy which the Emperor had at her ſafe return; for he loved her beyond his Soul; and there was no love loſt, for the Empereſs equal'd his Affection with no leſs love to him. After the time of rejoicing with each other, the Ducheſs's Soul begg'd leave to return to her Noble Lord; but the Emperor deſir'd, That before ſhe departed, ſhe would ſee how he had employed his time in the Empereſs's abſence; for he had built Stables and Riding-Houſes, and deſired to have Horſes of Manage, ſuch as, according to the Empereſs's Relation, the Duke of *Newcaſtle* had: The Emperor enquired of the Ducheſs, the Form and Structure of her Lord and Husbands Stables and Riding-Houſe. The Ducheſs anſwer'd his Majeſty, That they were but plain and ordinary; but ſaid ſhe, had my Lord Wealth, I am ſure he would not ſpare it, in rendering his Buildings as Noble as could be made. Hereupon the Emperor ſhew'd the Ducheſs the Stables he had built, which were moſt ſtately and magnificent; among the reſt there was one double Stable that held a hundred Horſes on a ſide, the main Building was of Gold, lined with ſeveral ſorts of precious Materials; the roof was Arched with Agats, the ſides of the Walls were lined with Cornelian, the Floor was paved with Amber, the Mangers

gers were Mother of Pearl, the Pillars, as alſo the middle Iſle or Walk of the Stables, were of Cryſtal; the Front and Gate was of Turquois, moſt neatly cut and carved. The riding-houſe was lined with Saphirs, Topaſes, and the like; the Floor was all of Golden-ſand, ſo finely ſifted, that it was extreamly ſoft, and not in the leaſt hurtful to the Horſes feet, and the Door and Frontiſpiece was of Emeralds, curiouſly carved.

After the view of theſe Glorious and Magnificent Buildings, which the Ducheſs's Soul was much delighted withal, ſhe reſolved to take her leave; but the Emperor deſired her to ſtay yet ſome ſhort time more, for they both loved her company ſo well, that they were unwilling to have her depart ſo ſoon: Several Conferences and Diſcourſes paſs'd between them; amongſt the reſt the Emperor deſir'd her advice how to ſet up a Theatre for Plays. The Ducheſs confeſſed her Ignorance in this Art, telling his Majeſty that ſhe knew nothing of erecting Theatres or Scenes, but what ſhe had by an Immaterial Obſervation when ſhe was with the Empereſs's Soul in the chief City of *E.* Entering into one of their Theatres, whereof the Empereſs could give as much account to His Majeſty as her ſelf. But both the Emperor and Empereſs told the Ducheſs, That ſhe could give directions how to make Plays. The Ducheſs anſwered, that ſhe had as little skill to form a Play after the Mode, as ſhe had to paint or make a Scene

Scene for ſhew. But you have made Playes, replied the Empereſs: Yes, anſwered the Ducheſs, I intended them for Playes; but the Wits of theſe preſent times condemned them as uncapable of being repreſented or acted, becauſe they were not made up according to the Rules of Art; though I dare ſay, that the Deſcriptions are as good as any they have writ. The Emperor ask'd, Whether the Property of Playes were not to deſcribe the ſeveral humours, actions and fortunes of Mankind? 'Tis ſo, anſwered the Ducheſs: Why then, replied the Emperor, the natural Humours, Actions and Fortunes of Mankind, are not done by the Rules of Art: But ſaid the Ducheſs, it is the Art and Method of our Wits to deſpiſe all Deſcriptions of Wit, Humour, Actions and Fortunes that are without ſuch Artificial Rules. The Emperor ask'd, Are thoſe good Playes that are made ſo Methodically and Artificially? The Ducheſs anſwer'd, They were Good according to the Judgment of the Age, or Mode of the Nation, but not according to her Judgment; for truly, ſaid ſhe, in my Opinion, their Playes will prove a Nurſery of Whining Lovers, and not an Academy or School for Wiſe, Witty, Noble, and well-behaved men. But I, replied the Emperor, deſire ſuch a Theatre as may make wiſe Men; and will have ſuch Deſcriptions as are Natural, not Artificial. If your Majeſty be of that Opinion, ſaid the Ducheſs's

Soul, then my Playes may be acted in your Blazing-World, when they cannot be acted in the Blinking-World of Wit; and the next time I come to viſit your Majeſty, I ſhall endeavour to order your Majeſties Theatre, to preſent ſuch Playes as my VVit is capable to make. Then the Empereſs told the Ducheſs, That ſhe loved a fooliſh Verſe added to a wiſe Play. The Ducheſs anſwered, That no VVorld in Nature had fitter Creatures for it then the Blazing-VVorld; for, ſaid ſhe, the Lowſe-men, the Bird-men, the Spider- and Fox-men, the Ape-men and Satyrs appear in a Verſe extraordinary pleaſant.

Hereupon both the Emperor and Empereſs intreated the Ducheſs's Soul to ſtay ſo long with them, till ſhe had ordered her Theatre, and made Playes and Verſes fit for them; for they onely wanted that ſort of Recreation; but the Ducheſs's Soul begg'd their Majeſties to give her leave to go into her Native VVorld; for ſhe long'd to be with her dear Lord and Husband, promiſing, that after a ſhort time ſhe would return again. VVhich being granted, though with much difficulty, ſhe took her leave with all Civility and reſpect, and ſo departed from their Majeſties.

After the Ducheſs's return into her own body, ſhe entertained her Lord (when he was pleaſed to hear ſuch kind of Diſcourſes) with Forreign Relations;

tions; but he was never diſpleaſed to hear of the Empereſs's kind Commendations, and of the Characters ſhe was pleaſed to give of him to the Emperor. Amongſt other Relations ſhe told him all what had paſt between the Empereſs, and the ſeveral Monarchs of that World whither ſhe went with the Empereſs; and how ſhe had ſubdued them to pay Tribute and Homage to the Monarch of that Nation or Kingdom to which ſhe owed both her Birth and Education. She alſo related to her Lord what Magnificent Stables and Riding-Houſes the Emperor had built, and what fine Horſes were in the Blazing-World, of ſeveral ſhapes and ſizes, and how exact their ſhapes were in each ſort, and of many various Colours, and fine Marks, as if they had been painted by Art, with ſuch Coats or Skins, that they had a far greater gloſs and ſmoothneſs than Satin; and were there but a paſſage out of the Blazing-World into this, ſaid ſhe, you ſhould not onely have ſome of thoſe Horſes, but ſuch Materials, as the Emperor has, to build your Stables and Riding-houſes withall; and ſo much Gold, that I ſhould never repine at your Noble and Generous Gifts. The Duke ſmilingly anſwered her, That he was ſorry there was no Paſſage between thoſe two Worlds; but ſaid he, I have alwayes found an Obſtruction to my Good Fortunes.

One

One time the Ducheſs chanced to diſcourſe with ſome of her acquaintance, of the Empereſs of the Blazing-world, who asked her what Paſtimes and Recreations Her Majeſty did moſt delight in? The Ducheſs anſwered, that ſhe ſpent moſt of her time in the ſtudy of Natural Cauſes and Effects, which was her chief delight and paſtime, and that ſhe loved to diſcourſe ſometimes with the moſt Learned perſons of that World; and to pleaſe the Emperor and his Nobles, who were all of the Royal Race, ſhe went often abroad to take the air, but ſeldom in the day time, always at Night, if it might be called Night; for, ſaid ſhe, the Nights there are as light as Days, by reaſon of the numerous Blazing-ſtars, which are very ſplendorous, onely their Light is whiter then the Sun's Light; and as the Suns Light is hot, ſo their Light is cool, not ſo cool as our twinkling Star-light, nor is their Sun-light ſo hot as ours, but more temperate; And that part of the Blazing-world where the Empereſs reſides, is always clear, and never ſubject to any Storms, Tempeſts, Fogs or Miſts, but has onely refreſhing Dews that nouriſh the Earth; the Air of it is ſweet and temperate, and, as I ſaid before, as much light in the Suns abſence, as in its preſence, which makes that time we call Night, more pleaſant there then the Day; and ſometimes the Empereſs goes abroad by Water in Barges, ſometimes by Land in Chariots, and ſometimes on Horſeback; her Royal Chariots

Chariots are very Glorious ; the body is one intire green Diamond; the four ſmall Pillars that bear up the Top-cover, are four white Diamonds, cut in the form thereof; the top or roof of the Chariot is one intire blew Diamond, and at the four corners are great ſprings of Rubies ; the ſeat is made of Cloth of Gold, ſtuffed with Amber-greece beaten ſmall; the Chariot is drawn by Twelve Unicorns, whoſe Trappings are all Chains of Pearl; And as for her Barges, they are onely of Gold. Her Guard for State (for ſhe needs none for ſecurity, there being no Rebels or Enemies) conſiſts of Gyants, but they ſeldom wait on their Majeſties abroad, becauſe their extraordinary height and bigneſs does hinder their proſpect. Her Entertainment when ſhe is upon the Water, is the Muſick of the Fiſh- and Bird-men, and by Land are Horſe- and Foot-matches; for the Empereſs takes much delight in making Race-matches with the Emperor, and the Nobility ; ſome Races are between the Fox- and Ape-men, which ſometimes the Satyrs ſtrive to outrun, and ſome are between the Spider-men and Lice-men. Alſo there are ſeveral Flight-matches, between the ſeveral ſorts of Bird-men, and the ſeveral ſorts of Fly-men ; and Swimming-matches, between the ſeveral ſorts of Fiſh-men. The Emperor, Empereſs, and their Nobles, take alſo great delight to have Collations ; for in the Blazing-world, there are moſt delicious Fruits of all ſorts, and ſome ſuch as in this

World were never ſeen nor taſted; for there are moſt tempting ſorts of Fruit: After their Collations are ended, they Dance; and if they be upon the Water, they dance upon the Water, there lying ſo many Fiſh-men cloſe and thick together, as they can dance very evenly and eaſily upon their backs, and need not fear drowing. Their Muſick, both Vocal and Inſtrumental, is according to their ſeveral places: Upon the Water it is of Water Inſtruments, as ſhells filled with Water, and ſo moved by Art, which is a very ſweet and delightful harmony; and thoſe Dances which they dance upon the Water, are, for the moſt part ſuch as we in this World call Swimming Dances, where they do not lift up their feet high: In Lawns or upon Plains they have VVind-Inſtruments, but much better then thoſe in our World; And when they dance in the VVoods they have Horn-Inſtruments, which although they are a ſort of VVind-Inſtruments, yet they are of another Faſhion then the former; In their Houſes they have ſuch Inſtruments as are ſomewhat like our Viols, Violins, Theorboes, Lutes, Citherins, Gittars, Harpſichords, and the like, but yet ſo far beyond them, that the difference cannot well be expreſt; and as their places of Dancing and their Muſick is different, ſo is their manner or way of Dancing. In theſe, and the like Recreations, the Emperor, Empereſs, and their Nobility paſs their time.

THE

THE EPILOGUE TO THE READER.

BY this Poetical Deſcription, you may perceive, that my ambition is not onely to be Empereſs, but Authoreſs of a whole World; and that the Worlds I have made, both the Blazing- *and the other* Philoſophical *World, mentioned in the ~~Latter~~ firſt part of this Deſcription, are framed and compoſed of the moſt pure, that is, the rational parts of Matter, which are the parts of my Mind; which Creation was more eaſily and ſuddenly effected, then the Conqueſts of the two famous Monarchs of the World,* Alexander *and* Cæſar: *Neither have I made ſuch diſturbances, and cauſed ſo many diſſolutions of particulars, otherwiſe named deaths, as they did; for I have deſtroyed but ſome few men in a little Boat, which died through the extremity of cold, and that by the hand of Juſtice, which was neceſſitated to puniſh their crime of ſtealing away a young and beauteous Lady. And in the formation of thoſe Worlds, I take more delight and glory, then ever* Alexander *or* Cæſar *did in conquering this terreſtrial world; and though I have made my* Blazing-world, *a Peaceable World, allowing it but one*

Religion, one Language, and one Government; yet could I make another World, as full of Factions, Diviſions, and Wars, as this is of Peace and Tranquility; and the rational figures of my Mind might expreſs as much courage to fight, as Hector *and* Achilles *had; and be as wiſe as* Neſtor, *as Eloquent as* Ulyſſes, *and as beautiful as* Helen. *But I eſteeming Peace before War, Wit before Policy, Honeſty before Beauty; inſtead of the figures of* Alexander, Cæſar, Hector, Achilles, Neſtor, Ulyſſes, Helen, *&c. choſe rather the figure of Honeſt* Margaret Newcaſtle, *which now I would not change for all this terreſtrivl World; and if any ſhould like the World I have made, and be willing to be my Subjects, they may imagine themſelves ſuch, and they are ſuch; I mean, in their Minds, Fancies or Imaginations; but if they cannot endure to be ſubjects, they may create Worlds of their own, and Govern themſelves as they pleaſe: But yet let them have a care, not to prove unjuſt Uſurpers, and to rob me of mine; for concerning the* Philoſophical *World, I am Empereſs of it my ſelf; and as for the* Blazing-*world, it having an Empereſs already, who rules it with great wiſdom and conduct, which Empereſs is my dear Platonick Friend; I ſhall never prove ſo unjuſt, treacherous and unworthy to her, as to diſturb her Government, much leſs to depoſe her from her Imperial Throne, for the ſake of any other; but rather chuſe to create another World for another Friend.*